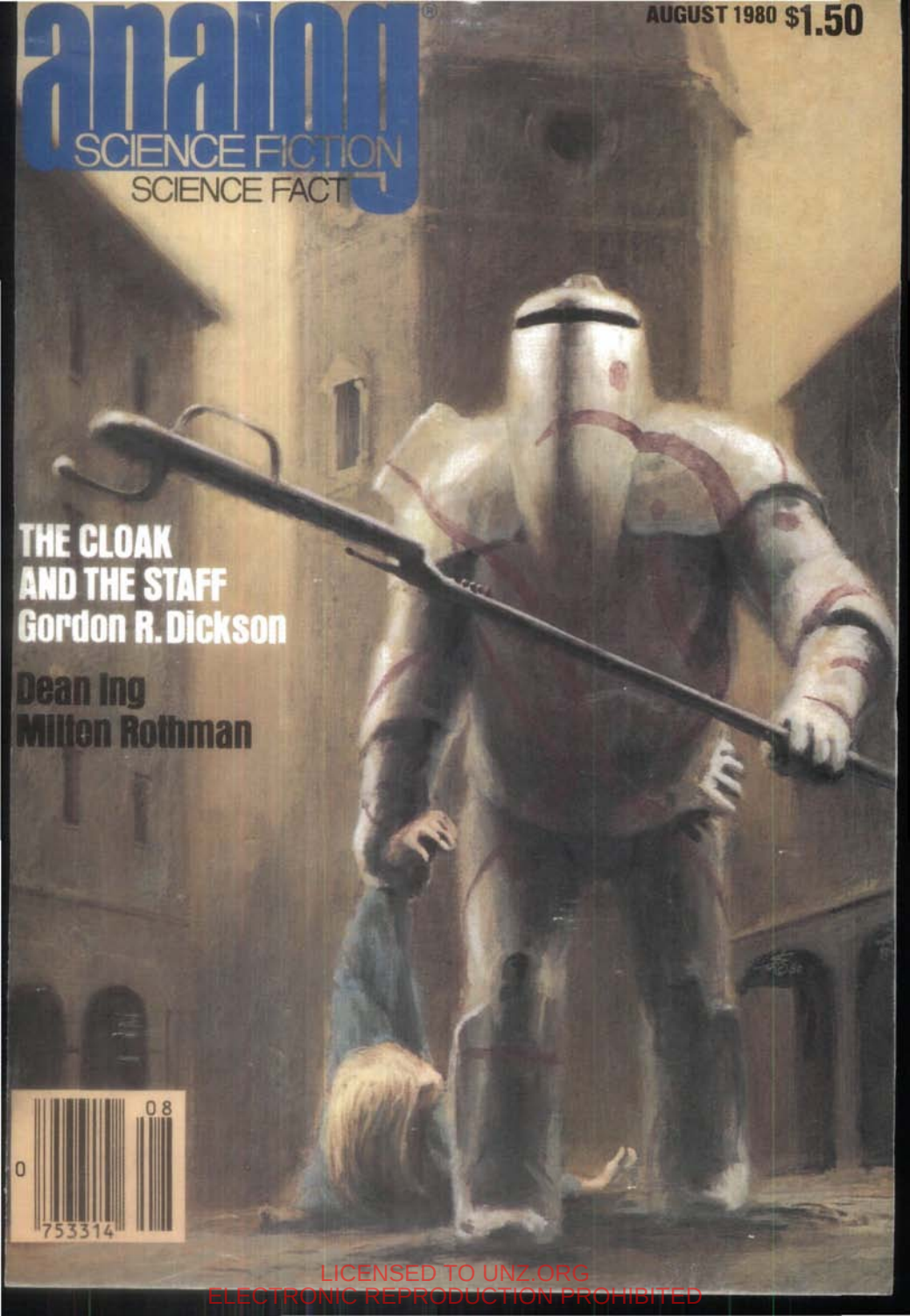

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Energy Proposal

Editorial by
Stanley Schmidt

As we stumble along, wishing we had an energy policy, most of us seem agreed on at least a few—though not many—points. We seem to be fairly unanimous, for example, in accepting that conservation must be a large part of whatever we do in the coming years. We may not agree on what form it should take—voluntary cutbacks, rationing, odd-even plans, artificially high taxes—but practically everybody seems to agree that something must be done to discourage and reduce consumption.

But there's danger in unanimity, too. At the very least, there's the danger that if everybody agrees, even generally, about what should be done, little effort will go into looking at fundamentally different possibilities.

And despite what you've heard, it's just not true that two-hundred-million people (or any number of your choice) can't be wrong.

They can. And if they are, the result can be deadly.

So, with this caution in mind, and to keep in practice, let's consider a wildly different suggestion about an energy strategy. The basic philosophy of conservation, as the proponent of this new view might paraphrase it, is that in *n* years—say, twenty—we're going to run out of oil, if we don't do something. Therefore, we should begin conserving now, to stretch the remaining supplies and buy time to develop alternative energy sources.

Which sounds *admirable.*

"But," asks our hypothetical philosopher (let's call him Diogenes Jones), "what actually comes of it in practice? The most immediate effect is that we start being miserable *now* instead of in twenty years. And how much time do we buy? Well, if we cut consumption ten percent, then we gain two years. We can run out completely and start being *really* miserable in twenty-two years instead of twenty—after having spent those twenty-two years being *moderately* miserable, when we didn't have to."

"No, no," you say. "You miss the point. Those extra two years will enable us to develop a good set of alternatives and everything will be peachy thereafter."

"Oh?" says Diogenes Jones. "I don't expect to be around thereafter, so how does it help me? And what have you done so far, anyway?"

Silence. Heavy, awkward silence.

And into that silence Diogenes

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Jones offers a counterproposal: Let's forget about rationing, high taxes whose sole purpose is to discourage oil use, and all similar measures. (Parenthetical note: Do you really believe that a large additional per-gallon tax on gasoline is *anti-inflationary,* as was claimed—or at least implied—in at least one recent proposal?) Let's just go about our business, using the available supplies (until they run out) as we normally would, at prices determined by actual fluctuations of supply and demand. (We gloss over the difficulties of figuring out what those really are from the data filtered through powerful multinational producers and distributors.)

Is Diogenes Jones advocating wanton, wasteful consumption? No. He's all for having people use what they use with reasonable thought for how to use it best, and cutting real waste wherever possible—but *without* artificial restraints which require them to forego large parts of what they want to do, or to fork over large punitive sums to the government for even the necessary minimum that they *must* do. And he certainly favors a vigorous, ongoing program of research to develop those alternate sources.

After all, we *are* going to need them, eventually.

So what possible rationale can he have for advocating such an outrageous approach to a very serious problem?

Precisely because we *are* going to need those new sources, we are going to have to feel an urgent need to develop them—and there's not much evidence that we do, yet. Long-range problems—problems whose solutions are not needed right away, but will take so long to achieve that work on them needs to be started right away—are a notoriously difficult type. They have been the stuff of science fiction since the beginning; people are just beginning to realize that they are the stuff of reality as well. I wrote a novel about such a problem once—a big, big problem that wouldn't become acute for seventeen years, but would then mean the end of everything. The one man who best understood that couldn't get people interested in doing much about it because they couldn't *feel* it yet. For a long time neither he nor I knew how to break their inertia, but eventually he figured out a solution: to interest people in doing anything about a big, long-range, far-off problem, you have to convert it to an immediate, short-range, *personal* problem.

So he did. He didn't *like* that solution, but he never thought of a better one. Neither did I.

The oil problem falls in that category. Presumably such proposals as a fifty-cent-a-gallon gasoline tax are an attempt to do what I've just described: to convert the big, long-range problem to an immediate, short-range problem. To make it hurt, now, so that people will realize they must do something.

But is it an *effective* way to do that?

Diogenes Jones' suspicion is that it is not. For one thing, the feeling lingers, in many people's minds, that this pain is artificial; that it has been created by

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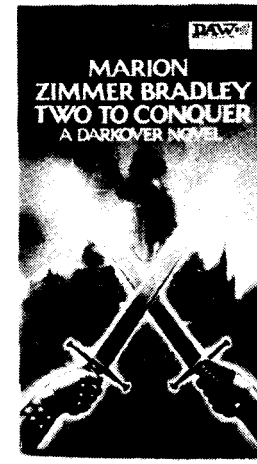

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the government and if it becomes *too* uncomfortable, the government (being benevolent) can turn it off. For another, conserving through visible sacrifice creates the illusion that something truly significant is being done when in fact—or at least in Diogenes' suspicious opinion—it is not.

Historically, he says, we have a long record of letting crises build up, without real preparation, until they become so clearly acute and immediate that they can no longer be ignored—as in the invasion of Pearl Harbor. But we also have a record, once the problem *is* acute and immediate, of working under extreme pressure to solve it—and doing so despite obviously inadequate time.

We *are* going to run out of oil. There's little, if any, question about that. We *are* going to have to develop alternatives if we want to keep civilization going. Nobody's sure exactly when, but twenty years may be a fairly reasonable number to use for purposes of discussion. If that figure is right, do the two extra years we might buy by conservation really mean that much?

Or might we do better to let people go ahead and conduct business as usual for as long as they're able, and then buckle down to *real* work on alternatives when the end of oil is very clearly at hand?

Yes, that course is risky. It gambles on the assumption that when people are faced with a crisis that they *know* is real, and not created by governments or profiteering oil companies, that pressure will drive them to work so intensively on the problem that they will be able to solve it in the time remaining.

Which will then be much less than it is now. And the sacrifice and struggle, if we wait that long, will be far more acute and painful (though perhaps briefer) than they might be if we got to work now.

But Diogenes' concern is that we have *not* gotten down to work yet. All we have so far is a modest degree of (partially) self-inflicted pain, and a good deal of *talk* about energy self-sufficiency—but not much *action* in the form of concrete, ambitious programs with adequate funding. Furthermore, Diogenes suspects, we *won't* do anything serious until we feel the problem as much more clear-cut and immediate than most people do so far—in other words, until we're visibly about to run out. If that's the case, why not go ahead and get it over with? If we conserve, without putting a corresponding effort into new development, we merely delay the moment of acute crisis—and by delaying the crisis we delay the kind of effort that will be needed to find a solution. By proceeding normally, we force the crisis on ourselves sooner—which may, ultimately, cause us to solve it sooner. And in the meantime, we can go on living more or less normally, instead of deliberately subjecting ourselves to the economic equivalent of a twenty-year low-level toothache.

I'm not sure Diogenes Jones is right. But are you sure he's wrong?

Two points I must make in closing. First, I've been contrasting two ex-

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treme courses we might follow. One is to conserve stringently while doing little about alternative development. The other is to wait, making no particular effort at *either* conservation or alternative development until urgently necessary, and then depending on the psychological effects of acute pressure to force the rapid development of solutions. It is most important to recognize that these are not the *only* courses available. I still dare to hope for the emergence of programs with a lot more emphasis on the immediate development of new energy sources and less wasteful machinery (both mechanical and social), and a lot less on the immediate curtailment of activity *per se*.

Second, it might be suggested that the present manipulation of oil prices and supplies by OPEC might provide the immediate stimulus we need to make us do something significant—but it should not be allowed to goad us into the wrong *kind* of action. As I write this, there is more warlike a mood in this country than there has been for several years. But taking other people's oil by force is not a solution. We must not delude ourselves into thinking it is. Completely aside from ethical issues, the blunt fact is that, in long-range terms, the Arabs don't have very much oil, either. Furthermore, a war over oil would waste a lot of the very thing it was being fought for, as well as having a host of other unhealthy side effects.

The present OPEC stranglehold may serve as the immediate danger we need to make us do something—but let it be something meaningful, like finally putting a *real* effort into developing our own new energy sources. And in the meantime, let's make sure that any forced conservation we practice serves genuinely useful and necessary purposes, and not just as a sort of ritual flagellation.

Diogenes Jones, after all, just may be right. ■

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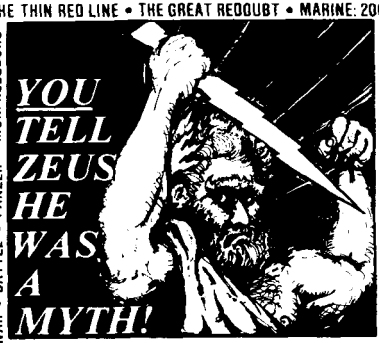

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THE CLOAK AND THE STAFF

Man is a rational animal—
but the "rational" decision is
not always the right one.

GORDON R. DICKSON

Descending in the icy, grey November dawn from the crowded bus that had brought the airline passengers over the mountains from Bologna—as frequently happened in wintertime, the airport at Milan, Italy was fogged in; and the courier ship, like the commercial jets, had been forced to set down in Bologna—Shane Evert caught a glimpse out of the corner of his eye of a small stick-figure, inconspicuously etched on the base of a lamp post.

He did not dare to look at it directly; but the side glance was enough. He flagged a taxi and gave the driver the address of the Aalaag Guard Headquarters for the city.

"E freddo, Milano," said the driver, wheeling the cab through the nearly-deserted morning streets.

Shane gave him a monosyllable in a Swiss accent, by way of agreement. Milan was indeed cold in November. Cold and hard. To the south, Florence would be still soft and warm, with blue skies and sunlight. The driver was probably hoping to start a conversation and find out what brought his human passenger to an alien HQ, and that was dangerous. Ordinary humans did not love those who worked for the Aalaag. If I say nothing, Shane thought, he may be suspicious. No, on second thought, he'll just think from the Swiss accent that I'm someone who has a relative in trouble in this city, and don't feel like conversation.

The driver spoke of the summer now past. He regretted the old days when tourists had come through.

To both these statements, Shane gave the briefest of responses. Then there was silence in the cab except for the noise of travel. Shane leaned his staff at a more comfortable angle against his right leg and left shoulder, to better accommodate it to the small passenger compartment of the cab. He smoothed his brown robe over his knees. The image of the stick-figure he had seen still floated in his mind. It was identical with the figure he himself had first marked upon a wall beneath the triple hooks with the dead man on them, in Aalborg, Denmark over half-a-year ago:—

But he had not marked this one on the lamp post. Nor, indeed, had he marked any of the other such figures

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he had glimpsed about the world during the last eight months. One moment of emotional rebellion had driven him to create an image that was now apparently spawning and multiplying to fill his waking as well as his sleeping hours with recurring nightmares. It did no good to remind himself that no one could possibly connect him with the original graffito. It did no good to know that, all these eight months since he had been an impeccable servant of Lyt Ahn.

Neither fact would be of the slightest help if for some reason Lyt Ahn, or any other Aalaag, should believe there was cause to connect him with any one of the scratched figures.

What insane, egocentric impulse had pushed him to use his own usual pilgrim-sect disguise as the symbol of opposition to the aliens? Any other shape would have done as well. But he had had the alcohol of the Danish bootleg aquavit inside him; and with the memory of the massive Aalaag father and son in the square, watching the death of the man they had condemned and executed—above all, with the memory of their conversation, which he alone of all the humans there could understand—also burning in him, for one brief moment reason had flown out the window of his mind.

So, now his symbol had been taken up and become the symbol of what was obviously an already-existent human underground in opposition to the Aalaag, an underground he had never suspected. The very fact that it existed at all forecast bloody tragedy for any human foolish enough to be related to it. By their own standards the Aalaag were unsparingly fair. But they considered humans as 'cattle'; and a cattle owner did not think in terms of being 'fair' to a sick or potentially dangerous bull that had become a farm problem...

"Eccolo!" said the cab driver.

Shane looked as bidden and saw the alien HQ. A perfectly reflective force shield covered it like a coating of mercury. It was impossible to tell what kind of structure it had been originally. Anything from an office building to a museum was a possibility. Lyt Ahn, First Captain of Earth, in his HQ overlooking St. Anthony's falls in what had once been the heart of Minneapolis, scorned such an obvious display of defensive strength. The grey concrete walls of his sprawling keep on Nicollet Island had nothing to protect them but the portable weapons within; though these alone were capable of leveling the metropolitan area surrounding in a handful of hours. Shane paid the driver, got out and went in through the main entrance of the Milan HQ.

The Ordinary Guards inside the big double doors and those on the desk were all human. Young for the most part, like Shane himself, but much bigger; for the largest of humans seemed frail and small to the eight-foot Aalaag. These guards wore the usual neat, but drab, black uniforms of servant police. Dwarfed among them, in spite of his five feet eleven inches of height, Shane felt a twinge of

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perverse comfort at being within these walls and surrounded by these particular fellow humans. Like him, they ate at the alien's tables; they would be committed to defend him against any non-servant humans who should threaten him. Under the roof of masters who sickened him, he was physically protected and secure.

He stopped at the duty desk and took his key from the leather pouch at his belt, leaving the documents within. The human duty officer there took the key and examined it. It was made of metal—metal which no ordinary Earth native was allowed to own or carry—and the Mark of Lyt Ahn was stamped on the square handle.

"Sir," said the officer in Italian, reading the Mark. He was suddenly obliging. "Can I be of assistance?"

"I sign in, temporarily," answered Shane in Arabic, for the officer's speech echoed the influence of the throat consonants of that language. "I am the one who delivers messages for the First Captain of Earth, Lyt Ahn. I have some to deliver now to the Commander of these Headquarters."

"Your tongue is skilled," said the officer in Arabic, turning the duty book about and passing Shane a pen.

"Yes," said Shane and signed.

"The Commander here," said the officer, "is Laa Ehon, Captain of the sixth rank. He accepts your messages."

He turned and beckoned over one of the lesser human guards.

"To the outer office of Laa Ehon, with this one bearing messages for the Commander."

The guard saluted, and led Shane off. Several flights of stairs up beside an elevator which Shane would have known better than to use even if the guard had not been with him, brought them to a corridor; down which, behind another pair of large carved doors, they reached what was plainly an outer room of the private offices of the Aalaag Commander in Milan.

The guard saluted and left. There were no other humans in the room. An Aalaag of the twenty-second rank sat at a desk in a far corner of the large, open space, reading what seemed to be reports on the sort of plastic sheets that would take and hold multiple overlays of impressions. In the wall to Shane's left was a window, showing the slight corner shading that betrayed an Aalaag version of one-way glass. The window gave a view of what must be an adjoining office having benches for humans to sit on. This office was empty, however, except for a blonde-haired young woman, dressed in a loose, ankle-length blue robe tied tight around her narrow waist.

There was no place for Shane to sit. But, in close attendance as he customarily was on Lyt Ahn and other Aalaag of low-number rank, he was used to waiting on his feet for hours.

He stood. After perhaps twenty minutes, the Aalaag at the desk noticed him.

"Come," he said, lifting a thumb the size of a tent peg. "Tell me."

He had spoken in Aalaag, for most human servants had some understanding of the basic commands in the

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tongue of their overlords. But his face altered slightly as Shane answered; for there were few humans like Shane—and Shane both worked and lived with all of those few—who were capable of fluent, accentless response in that language.

"Untarnished sir," said Shane, coming up to the desk and stopping before it. "I have messages from Lyt Ahn directly to the Commander of the Milan Headquarters."

He made no move to produce the message rolls from his pouch; and the Aalaag's massive hand, which had begun to extend itself, palm up, toward him at the word "messages" was withdrawn when Shane pronounced the name of Lyt Ahn.

"You are a valuable beast," said the Aalaag. "Laa Ehon will receive your messages soon."

"Soon" could mean anything from "within minutes" to "within weeks." However, since the messages were from Lyt Ahn, and personal, it was probable that it would be minutes rather than a longer time. Shane went back to his corner.

The door opened, and two other Aalaag came in. They were both males in middle life, one of the twelfth, one of the sixth rank. The one of sixth rank could only be Laa Ehon. A Captain of a rank that low-numbered was actually too highly qualified to command a single HQ like this. It was unthinkable that there would be two such here.

The newcomers ignored Shane. No, he thought, as their gaze moved on, they had not merely ignored him. Their eyes had noticed, catalogued, and dismissed him in a glance. They walked together to the one-way window; and the one who must be Laa Ehon spoke in Aalaag.

"This one?"

They were examining the girl in the blue robe, who sat unaware of their gaze in the other room.

"Yes, untarnished sir. The officer on duty in the square saw this one move away from the wall I told you of just before he noticed the scratching on it." The Captain of the twelfth rank pointed with his thumb at the girl. "He then examined the scratching, saw it was recently made and turned to find this one. For a moment he thought she had been lost among the herd in the square, then he caught sight of her from the back, some distance off and hurrying away. He stunned her and brought her in."

"His rank?"

"Thirty-second, untarnished sir."

"And this one has been questioned?"

"No sir, I waited to speak to you about procedure."

Laa Ehon stood for a moment, unanswering, gazing at the girl.

"Thirty-second, you said? Did he know this particular beast previously to seeing her in the square?"

"No sir. But he remembered the color of her apparel. There was no other in that color nearby."

Laa Ehon turned from the window.

"I'd like to talk to him, first. Send him to me."

"Sir, he's presently on duty."

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"Ah."

Shane understood Laa Ehon's momentary thoughtfulness. As commanding officer, he could easily order the officer in question to be relieved from duty long enough to report to him in person. But the Aalaag nature and custom was such that only the gravest reason would allow him to justify such an order. An Aalaag on duty, regardless of rank, was almost a sacred object.

"Where?" Laa Ehon.

"The local airport, untarnished sir."

"I will go and speak to him at his duty post. Captain Otah On, you are ordered to accompany me."

"Yes, untarnished sir."

"Then let us move with minimal loss of time. It is unlikely that this matter has more importance than presently seems, but we must make sure of that."

He turned toward the door with Otah On behind him. Once more his eyes swept Shane. He stopped and looked over at the Aalaag.

"What is this one?" he asked.

"Sir," the Aalaag at the desk was on his feet. "A courier with messages for your hand from Lyt Ahn."

Laa Ehon looked back at Shane.

"I will accept your messages in an hour, no more, once I've come back. Do you understand what I have just said to you?"

"I understand, untarnished sir," said Shane.

"Until then, remain dutiful. But be comfortable."

Laa Ehon led the way out of the room, Otah On close behind him. The Aalaag at the desk sat down again and went back to his sheets.

Shane looked once more at the girl beyond the one-way glass. She sat, unaware of what another hour would bring. They would question her with chemicals, of course, first. But after that their methods would become physical. There was no sadism in the Aalaag character. If any of the aliens had shown evidence of such, his own people would have considered it an unfitting weakness and destroyed him for having it. But it was understood that cattle might be induced to tell whatever they knew if they were subjected to sufficient discomfort. An Aalaag, of course, was above any such persuasion. Death would come long before any degree of discomfort could change the individual alien's character enough to make him or her say what they wished to keep unsaid.

Shane felt his robe clinging to his upper body, wet with a secret sweat. The woman sat almost in profile, her blonde hair down the her shoulders, her surprisingly pale-skinned (for this latitude) face, smooth and gentle-looking. She could not be more than barely into her twenties. He wanted to look away from her, so that he could stop thinking about what was awaiting her, but—as it had happened to him a year ago with the man on the triple hooks when he had first created the symbol—Shane could not make his head turn.

He knew it now for what it was—a

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madness in him. A madness born of his own hidden revulsion against and private terror of these massive humanoids who had descended to own the Earth. These were the masters he served, who kept him warm and well-fed when most of the rest of humanity chilled and ate little, who patted him with condescending compliments—as if he was in fact the animal they called him, the clever house pet ready to wag his tail for a kind glance or word. The fear of death was like an ingot of cold iron inside him, when he thought of them; and the fear of a long and painful death was like that same ingot with razor edges. But at the same time there was this madness—this madness that, if he did not control it by some small actions, would explode and bring him to throw his dispatches in some Aalaag face, to fling himself one day like a terrier against a tiger, at the throat of his Master, First Captain of Earth, Lyt Ahn.

It was a real thing, that madness. Even the Aalaag knew of its existence in their conquered peoples. There was even a word for it in their own tongue—*Yowaragh*. Yowaragh had caused the man on the hooks a year ago to make a hopeless attempt to defend his wife against what he had thought was an Aalaag brutality. Yowaragh, every day, caused one human at least somewhere in the world, to fling a useless stick or stone against some shielded, untouchable conqueror in a situation where escape was impossible and destruction was certain. Yowaragh had knocked at the door of Shane's brain once, a year ago, threatening to break out. It was knocking again.

He could not help but look at her; and he could not bear to look at her—and the only alternative to an end for both of them was to somehow keep it from happening—Laa Ehon's return, the torture of the girl, and the yowaragh that would lead to his own death.

In one hour, Laa Ehon had said, he would be back. Rivulets of perspiration were trickling down Shane's naked sides under the robe. His mind had gone into high gear, racing like an uncontrolled heartbeat. What way out was there? There must be one—if he could think of it. The other side of the coin to what they would do to the girl was built on the same lack of sadism. The Aalaag would only destroy property for some purpose. If there was no purpose, they would not waste a useful beast. They would have no emotional stake in keeping her merely because she had been arrested in the first place. She was too insignificant; they were too pragmatic.

His mind was feverish. He was not sure what he planned, but all his intimate knowledge of the Aalaag in the three years he had lived closely with them was simmering and bubbling in the back of his mind. He went and stood before the Aalaag at the desk.

"Yes?" said the Aalaag, after a little while, looking up at him.

"Untarnished sir, the Captain Commander said that he would be

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back in an hour to accept my messages, but until then I should be dutiful but comfortable."

Eyes with grey-black pupils gazed at him on a level with his own.

"You want comfort, is that it?"

"Untarnished sir, if I could sit or lie, it would be appreciated."

"Yes. Very well. The Commander has so ordered. Go find what facilities there are for such activities in the areas of our own cattle. Return in an hour."

"I am grateful to the untarnished sir."

The grey-black pupils were cast into shadow by the jet brows coming together.

"This is a matter of orders. I am not one who allows his beasts to fawn."

"Sir, I obey."

The brows relaxed.

"Better. Go."

He went out. He was moving swiftly now. As when before, in Denmark, he was at last caught up in what he was doing. There was no longer any doubt, any hesitation. He went swiftly down the outside corridor which was deserted, ears and eyes alert for sign of anyone, but particularly one of the aliens. As he passed the elevators, he stopped, looked about him.

There was no one watching; and once aboard the elevator he would be able to go from this floor down to street level or below without being seen. There would be other doors to the outside than the one by which he had come in; and on other levels, submain floor levels, he could possibly find them. There would be portals used only by the Aalaag themselves and their most trusted servants, and they would be free to come and go without being noticed.

He punched for the elevator. After a moment it came. The doors swung wide. As it opened he turned away and readied himself to pretend—in case there was an Aalaag aboard—that he was merely passing by. But the elevator compartment was empty.

He stepped inside. The only danger remaining for him now was that some other Aalaag on a floor below would have just punched for this elevator. If if stopped for one of the aliens and the door opened to reveal him inside, he would be trapped—doubly guilty, for being where he should not be and also for being absent from his duty, which at the present was to lie down or otherwise relax. Only Aalaag were permitted to use elevators.

For a moment he thought the one in which he was descending was going to hesitate on the first floor. In the back of his mind, plans flickered like heat lightning on a summer evening. If it did stop, if the door did open and an Aalaag walked in, he planned to throw himself at the alien's throat. Hopefully, the other would kill him out of reflex, and he would escape being held for questioning as to why he was where he was.

But the elevator did not stop. It continued moving downward, and the telltale light illuminating the floor numbers as they passed showed it was approaching the floor just below street level. Shane punched for the

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cage to stop. It did, the door opened and he stepped into a small, square corridor leading directly to a glass door and a flight of steps beyond, leading upward. He had hit on one of the alien ways out of the building.

He left the elevator and went quickly along the corridor to the door. It was locked, of course; but in his pocket he carried the Key of Lyt Ahn, or at least the Key that all the special human servants of Lyt Ahn were allowed to bear. It would open any ordinary door in a building belonging to the aliens.

He tried the key now, and it worked. The door swung noiselessly open. A second later he was out of it, up the stairs and into the street above.

He went down the street, walking at a pace just short of a run, and turned right at the first crossing, searching for a market area. Four blocks on, he found a large square with many shops. A single Aalaag sat on his riding animal, towering and indifferent to the crowd about him, before a set of pillars upholding a sidewalk arcade at one end of the square. Whether the alien was on duty or simply waiting for something or someone, it was impossible to tell. But for Shane, now, to use a shop on this square would not be wise.

He hurried on. A few streets farther on, he found a smaller collection of shops lining both sides of a blind alley, and one of these was a store for such simple clothing as the Aalaag allowed humans to use nowadays. He stepped inside and a small bell over the door chimed softly.

"Signore?" said a voice.

Shane's eyes adjusted to the interior dimness and saw a counter piled high with folded clothing and with a short, dark-faced man with a knife-blade nose behind it. Remarkably, in these days of alien occupation, the proprietor had a small potbelly under his loose yellow smock.

"I want a full-length robe," Shane said. "Reversible."

"Of course." The proprietor began to come around the counter. "What type?"

"How much is your most expensive garment?"

"Seventy-five new lire or equivalent in trade, signore."

Shane dug into the purse hanging from the rope around his waist, and threw on the counter before him metal coins issued by the Aalaag for use as an international currency—the gold and silver rectangles with which his work as an employee of Lyt Ahn was rewarded.

The store owner checked his movement. His eyes moved to the coins, then back to Shane's face with a difference. Only humans of great power under the alien authority, or those engaged in the illegal black market, would ordinarily have such coins with which to pay their bills; and it would be seldom that such would come into a small shop like this.

He moved toward the coins. Shane covered them with his hand.

"I'll pick the robe out myself," he said. "Show me your stock."

"But of course, of course, signore."

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The proprietor went past the coins and out from behind the counter. He opened a door to a back room and invited Shane in. Within, were tables stacked with clothing and cloth. In one corner, under a kerosene lamp, was a tailor's worktable with scraps of cloth, tools, thread, and some pieces of blue or white chalk.

"Here are the robes, on these two tables," he said.

"Good," said Shane, harshly. "Go over to the corner there and turn around. I'll pick out what I want."

The man moved swiftly, his shoulders hunched a little. If his visitor was black market, it would be unwise to argue with or irritate him.

Shane located the reversible robes among the others, and pawed through them, selecting the largest one he could find that was blue on one side. The other side of it was brown. He pulled it on over his own robe, the blue side out, and drew the drawstring tight at the waist. Stepping across to the worktable, he picked up a fragment of the white chalk.

"I'll leave a hundred lire on the counter," he said to the back of the proprietor. "Don't turn around, don't come out until I've been gone for five minutes. You understand?"

"I understand."

Shane turned and went. He glanced at the counter as he passed. He had snatched coins from his purse at random and there was the equivalent of over a hundred and fifty lire in gold and silver on the counter. It would not do to make the incident look any more important to the storeman than was necessary. Shane scooped up fifty lire-equivalent and went out the door, heading back toward the square where he had seen the mounted Aalaag.

He was very conscious of the quick sliding by of time. He could not afford to be missing from the headquarters more than the hour the officer on duty had allowed him. If the Aalaag had left the square...

But he had not. When Shane, sweating, once more emerged into the square, the massive figure still sat unmoved, as indifferent as ever.

Shane, because of his duties, was allowed to carry one of the Aalaag's perpetual timepieces. It lay in his purse now, but he dared not consult it to see how much time remained. A glimpse of it by the ordinary humans around would identify him as a servant of the aliens, and win him the bitter enmity of these others; and that enmity, here and now, could be fatal.

He went quickly through the crowd swarming the square. As he got close to the Aalaag on the riding animal, the adrenalin-born courage inside him almost failed. But a memory of the prisoner back at the headquarters rose in him, and he pushed himself on.

Deliberately, he made himself blunder directly beneath the heavy head of the riding animal, so that it jerked its nose up. Its movement was slight—only an inch or two—but it was enough to draw the attention of the Aalaag. His eyes dropped to see Shane.

Still moving, Shane kept his head

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down. He had pulled his hair down on his forehead as far as possible, to hide his face from the alien's view—but it was not really that he was counting on preserving his anonymity. Few Aalaag could tell one human from another—even after two years of close contact, Lyt Ahn recognized Shane from the other courier-interpreters more by the times on which Shane reported than by any physical individualities.

Shane scuttled past; and the alien, indifferent to something as mere as a single one of the cattle about him, raised his eyes to infinity again, returning to his thoughts. Shane went on for only a few more steps, to the nearest pillar, and stopped. There, hiding his actions with his body from the alien behind him, he pulled the tailor's white chalk from his pouch and with a hand that trembled, sketched on the stone of the pillar the cloaked figure with its staff.

He stepped back—and the sudden, almost inaudible moan of recognition and arrested movement in the crowd behind him drew—as he had known it would—the attention of the Aalaag. Instantly, the alien wheeled his animal about, reaching for the same sort of stunning weapon with which the woman prisoner had been captured.

But Shane was already moving. He ran into the crowd, threw himself down so that the bodies about would shield him from the view of the Aalaag, and rolled, frantically pulling off the outer, reversible robe.

Instinctively, defensively, the other humans closed about him, hiding him from the alien, who was now—weapon in one massive hand—searching their numbers to locate him. The reversible robe stuck and bound itself under his armpits, but at last Shane got it off. Leaving it on the ground behind him, still with its blue side out, he scuttled on hands and knees farther off, until, at last near the edge of the square, he risked getting to his feet and leaving it as quickly as he could without drawing attention to himself.

Panting, soaked with sweat, leaving behind humans who studiously avoided looking at him and beginning to move now among others who looked at him with entirely normal interest, Shane half-ran toward the Aalaag headquarters. Subjectively, it seemed as if at least an hour had passed since he had first stepped under the nose of the Aalaag riding animal; but reason told him that the whole business could not have taken more than a few minutes. He stopped at a fountain—bless Italy, he thought, for having fountains—to bathe his face, neck, and underarms. Officially, the Aalaag were indifferent to how their cattle stank; but in practice, they preferred those humans who were physically as much without odor as possible—though it never seemed to occur to them that they were as noisome in human noses as humans were in their own. But for Shane to return smelling strongly from what had theoretically been a rest period might attract interest to the period of time he had spent out of the office.

He let himself in with his key through the same door which had

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given him egress; and this time took a stair, rather than the elevator, to the entrance level of the headquarters. No one saw him emerge on the entrance level. He paused to check his timepiece and saw that he still had some twelve minutes of his hour.

He made use of that time by asking one of the Ordinary Guards where the rest facilities for cattle were, went to it, and retraced his steps from there to the office he had waited in before. Outside the office door, he discovered he had still four minutes left, and stood where he was until he could enter at the exact moment on which he had been told to return.

The alien officer at the desk looked up as he came in, glanced at the clock face over the door and returned to his papers silently. Nonetheless, Shane felt the triumph of a minor point scored. Precise obedience was a mark in any human's favor, in Aalaag eyes. He went back to the spot on which he had been standing before—and stood again.

It was nearly three-quarters of an hour later that the door opened and Laa Ehon, with Otah On, entered. With a subjected being's acuteness of observation, reinforced by the experience gained in his two years of close contact with aliens, Shane recognized both of the officers at once. They went directly to the one-way glass to stare at the human prisoner beyond; and Shane's heart sank in panic.

It was inconceivable that his actions in the square of an hour before should not have been reported by this time. But it looked as if the two senior officers were about to proceed with the young woman as if nothing had happened. Then Laa Ehon spoke.

"It is indeed the same color," the headquarters Commander said. "There must be many of the cattle so dressed."

"Very true, untarnished sir," answered Otah On.

Laa Ehon studied the young woman for a moment longer.

"Was she at any time made aware of the specific reason for her being brought here?" he asked.

"Nothing has been told her, untarnished sir."

"Yes," said Laa Ehon, thoughtfully. "Well, then. It is a healthy young beast. There is no need to waste it. Let it go."

"It will be done."

Laa Ehon turned from the one-way glass and his eyes swept over the rest of the room, stopping on Shane. He walked forward to Shane.

"You were the beast with dispatches from Lyt Ahn?"

"Yes, untarnished sir," said Shane. "I have them here for you."

He produced them from his pouch and handed them into the large grasp of the Commander. Laa Ehon took them, unfolded and read them. He passed them to Otah On.

"Execute these."

"Yes, untarnished sir."

Otah On carried the dispatches over to the desk of the duty officer and spoke to him, handing him the papers. The eyes of Laa Ehon fastened on

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Shane, with a glimmer of interest.

"You speak with great purity," said the Commander. "You are one of the First Captain's special group of beasts for speaking and carrying, are you not?"

"I am, untarnished sir."

"How long have you spoken the true language?"

"Two years of this world, untarnished sir."

Laa Ehon stood looking at him, and a trickle of perspiration crept coldly down Shane's spine under his robe.

"You are a beast worth having," said the Commander, slowly. "I did not think one such as you could be brought to speak so clearly. How are you valued?"

Shane's breath caught silently in his throat. Existence was barely endurable as one of the favored human group that was the personal property of Earth's ruling alien. The madness he feared would come quickly, if instead he should be trapped here, in this building, among the brutes that made up the Interior Guard.

"To the best of my knowledge, untarnished sir—" he dared not hesitate in his answer, "I am valued at half a possession of land—"

Otah On, who had just regained the side of his commander, raised his black eyebrows at the voicing of this price; but Laa Ehon's face remained thoughtful.

"—and the favor of my master Lyt Ahn," said Shane.

The thoughtfulness vanished from Laa Ehon's features. Shane's heart was pounding. It was true he had prefaced his answer with *to the best of my knowledge,* but in fact he had never officially been acquainted with the fact that part of his price involved the favor of his owner. What he knew himself to be valued at, half a possession of land—about forty miles square of what the Aalaag called "good country"—was an enormously high price in itself for any single human beast. It was roughly equivalent to what, in pre-Aalaag days, would have been the cost of a top-price, custom-made sports car, gold plated and set with jewels. But Laa Ehon had looked ready to consider even that. It was not the first time Shane had been aware that he possessed the status of a sort of luxury toy. Only, this time, Shane had mentioned that his price included the favor of Lyt Ahn. "Favor" was a term that went beyond all price. It was a designation meaning that his master was personally interested in keeping him, and that the price of any sale could include anything at all—but probably something Lyt Ahn would favor at least as much as what he was giving up. Such "favor," involved in a sale, could constitute in effect a blank check signed by the buyer, cashable at any time in the future for goods or actions by the seller, guaranteed under the unyielding obligation code of the Aalaag.

Shane had never been told he had Lyt Ahn's favor. He had only overheard Lyt Ahn once saying to his

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Chief of Staff that he must get around to extending his favor over all the beasts of that special group to which Shane belonged. If Laa Ehon should check with Lyt Ahn, and this had never been done, then Shane was doomed as an untrustworthy and lying beast. Even if the favor had been extended, Lyt Ahn might question how Shane had come to know of it.

And then, again, the First Captain, busy as he was with much more weighty affairs of Aalaag government might simply conclude that he had mentioned it at some time to Shane and since forgotten the fact. Claiming it now, was one of the daily gambles necessary to human daily existence in the midst of the aliens.

"Give him his receipt," said Laa Ehon.

Otah On passed Shane a receipt for the dispatches, made out a moment before by the duty officer. Shane put it in his pouch.

"You return directly to Lyt Ahn?" Laa Ehon said.

"Yes, untarnished sir."

"My courtesies to the First Captain."

"I will deliver them."

"Then you may go."

Shane turned and left. As the door closed behind him, he drew a deep breath and went quickly to the stairs, then down to the entrance floor and the entrance itself.

"I'm returning to the residence of the First Captain," he told the officer of the Ordinary Guards in charge at the entrance. It was the same man with the Arabic influence noticeable in his spoken Italian. "Will you get me space on the necessary aircraft? I've priority, of course."

"It's already taken care of," said the officer. "You're to travel with one of the Masters on courier duty in a military small craft, leaving in two hours. Shall I order transportation to the airfield?"

"No," said Shane briefly. He did not have to give the reasons for his actions to this uniformed lackey. "I'll get myself there."

He thought he caught a hint of admiration in the officer's steady gaze. But then, if the other ever thought of walking the Milan streets alone, it would be in his regular uniform, which he was never permitted to discard. Someone like this officer would never be able to imagine the freedom of Shane in going about, ostensibly as one of them, among the ordinary humans of the city—nor could he imagine how necessary these few moments of illusory freedom were to Shane.

"Very well," said the officer. "The Master who will carry you is Enech Ajin. The Masters' desk at the air terminal will direct you to him, when you get there."

"Thank you," said Shane.

"You are entirely welcome."

They had both picked up inevitably, Shane thought bitterly, the very courtesies and intonations of their owners...

He went out through the heavy, right-hand door of the pair that made

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up the entrance and down the steps. There were no taxis in sight—of course. No human without need to be there would hang around the alien headquarters. He turned up the same street he had followed to find the square.

He had gone past no more than two corners when a taxi passed him, cruising slowly. He hailed it, and got in.

"To the airport," he said to the driver, looking at the thin, overcoated man behind the wheel, as his fingers automatically opened the cab door. He stepped inside—and tripped over something on the floor as he got in.

The door slammed, the cab took off with a rush. He found himself held, pinioned by two men who had risen from crouching positions on the floor of the cab's back seat. They held him helpless and he felt something sharp against his throat.

He looked down and saw a so-called glass knife, actually a dagger made by a sliver of glass held between two bound-together halves of a wooden dagger. The glass formed the cutting edge and could be—as this one had—sandpaper to razorlike sharpness.

"Lie still!" growled one of the men in Italian.

Shane lay still. He smelled the rank, old stink of dirty clothing from both of the two who held him tightly. The taxi whirled him away through unknown streets to an unguessable destination.

They rode for at least twenty minutes, though how much of this was necessary distance to reach their goal, or how much was to mislead Shane in any attempt to estimate the length of the trip was impossible to guess. At length the taxi turned, bumped over some very uneven pavement, and passed under the shadow of an arch. Then it stopped, and the two men hustled Shane out of the vehicle.

He had just a glimpse of a dark and not too clean courtyard surrounded by buildings, before he was pushed up two steps, through a door and into a long, narrow corridor thick with ancient paint and cooking odors.

Shane was herded along the corridor, more numb than frightened. Inside him there was a feeling of something like fatalistic acceptance. He had lived for two years with the thought that someday ordinary humans would identify him as one of those who worked for the aliens; and when they did, they would then use him as an object for the bitter fear and hatred they all felt for their conquerors, but dared not show directly. In his imagination, he had lived through this scene many times. It was nonetheless hideous now for finally having become real, but it was a situation on which his emotions had worn themselves out. At the end, it was almost a relief to have the days of his masquerade over, to be discovered for what he really was.

The two men stopped suddenly. Shane was shoved through a door on his right, into a room glaringly lit by a single powerful light bulb. The contrast from the shadowed courtyard outside, and the even dimmer

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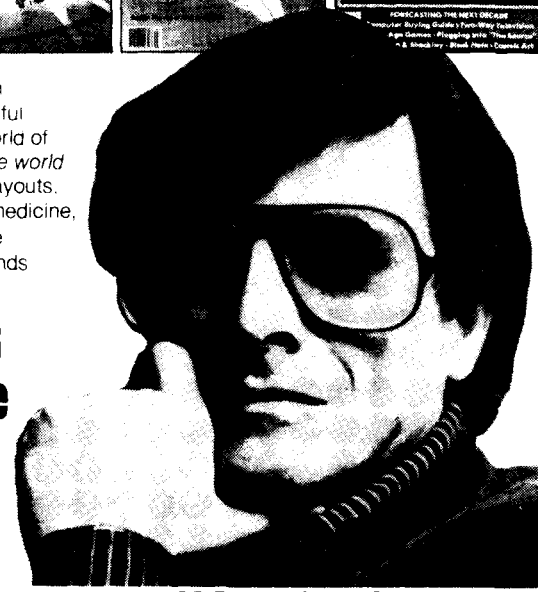

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hallway, made the sudden light blinding for a second. When his eyes adjusted, he saw that he was standing in front of a round table and that the room was large and high-ceilinged, with paint grimed by time on the walls and a single tall window which, however, had a blackout blind drawn tightly down over it. The cord from the light bulb ran not into the ceiling, but across the face of it, past a capped gas outlet, and down the further wall and to a bicycle generator. A young man with long black hair sat on the bicycle part of the generator and whenever the light from the ceiling bulb began to fade, he would pump energetically on his pedals until it brightened again and held its brightness.

There were several other men standing around the room, and two more at the table together with the only woman to be seen. She was, he recognized, the prisoner he had seen through the one-way glass. Her eyes met his now with the look of a complete stranger, and even in his numbness he felt strange that he should recognize her with such strong emotional identification and she should not know him at all. .

"Where's that clothing store owner?" said one of the men at the table with her, speaking to the room at large in a northern Italian underlaid with London English. He was young —as young in appearance as Shane himself; but, unlike Shane, spare and athletic looking with a straight nose, strong square jaw, thin mouth and blond hair cut very short.

"Outside, in the supply room," said a voice speaking the same northern Italian, but without accent.

"Get him in here, then!" said the man with the short hair. The other man beside him at the table said nothing. He was round-bodied and hard-fat, in his forties, wearing a worn leather jacket with a short-stemmed pipe in one corner of the mouth of his round face. He looked entirely Italian.

The door opened and closed behind Shane. A minute later it opened and closed again, and a blindfolded man Shane recognized as the proprietor of the store where he had bought the reversible cloak, was brought forward and turned around to face Shane. His blindfold was jerked off.

"Well?" demanded the short-haired young man.

The shopkeeper blinked under the unshaded electric light. His eyes focused on Shane then slid away.

"What is it you want, signori?" he asked. His voice was almost a whisper in the stark room.

"Didn't anyone tell you? Him!" said the short-haired man impatiently. "Look at him? Do you recognize him? Where did you see him last?"

The store proprietor licked his lips and raised his eyes.

"Earlier today, signore," he said. "He came into my shop and bought a reversible cloak, blue and brown—"

"This cloak?" The short-haired individual made a gesture. One of the men standing in the back of the room

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came forward to shove a bundled mass of cloth into the hands of the proprietor, who slowly unfolded it and looked at it.

"This is mine," he said, still faintly. "Yes. This was the one he bought."

"All right, you can go then. Keep the cloak. You two—don't forget to blindfold him." The short-haired man turned his attention to the young man slouching on the bicycle seat of the electric generator. "How about it, Carlo? Is he the one you followed?"

Carlo nodded. He had a toothpick in one corner of his mouth and through his numbness, Shane watched him with an odd sort of fascination, for the toothpick seemed to give him a rakish, infallible look.

"He left the Square of San Marco and went straight back to the alien HQ," Carlo said. "As fast as possible."

"That's it, then," said the short-haired man. He looked at Shane. "Well, do you want to tell us now what the Aalaag had you up to? Or do we have to wait while Carlo works you over a bit?"

Suddenly, Shane was weary to the point of sickness—weary of the whole matter of human subjects and alien overlords. Unexpected fury boiled up in him.

"You damn fool!" he shouted at the short-haired man. "I was saving *her*!"

And he pointed at the woman, who stared back at him, her gaze frowning and intent.

"You idiots!" Shane spat. "You stupid morons with your resistance games! Don't you know what they'd have done to her? Don't you know where you'd all be, right now, if I hadn't given them a reason to think it was someone else? How long do you think she could keep from telling them all about you? I'll tell you, because I've seen it—forty minutes is the average!"

They all looked at the woman, reflexively.

"He's lying," she said in a thin voice. "They didn't offer to do a thing to me. They just made me wait a while and then turned me loose for lack of evidence."

"They turned you loose because I gave them enough reason to doubt you were the one who made the mark!" The fury was carrying Shane away like a dark, inexorable tide. "They let you go because you're young and healthy and they don't waste valuable beasts without reason. Lack of evidence! Do you still think you're dealing with humans?"

"All right," said the short-haired man. His voice was hard and flat. "This is all very pretty, but suppose you tell us where you learned our Mark."

"Learned it?" Shane laughed, a laugh that was close to a sob of long-throttled rage. "You clown! I invented it. Me—myself! I carved it on a brick wall in Aalborg, two years ago, for the first time. Learn about it! How did you learn about it? How did the Aalaag learn about it? By seeing it marked up in places, of course!"

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There was a moment of silence in the room after Shane's voice ceased to ring out.

"He's crazy, then," said the hard-fat man with the pipe.

"Crazy," echoed Shane, and laughed again.

"Wait a minute," said the woman. She came around and faced him. "Who are you? What do you do with the Aalaag?"

"I'm a translator, a courier," said Shane. "I'm owned by Lyt Ahn—me and about thirty men and women like me."

"Maria—" began the short-haired man.

"Wait, Peter." She held up her hand briefly and went on without taking her eyes off Shane. "All right. You tell us what happened."

"I was delivering special communications to Laa Ehon—you know your local Commander, I suppose—"

"We know Laa Ehon," said Peter, harshly. "Keep talking."

"I had special communications to deliver. I looked through a one-way mirror and saw you—" he was looking at the woman named Maria. "I knew what they'd do to you. Laa Ehon was talking to one of his officers about you. All that had been spotted was some human wearing a blue robe. There was just a chance that if they had another report of a human in a blue robe making that mark it would make them doubtful enough so they wouldn't want to waste a healthy young beast like you. So I ducked out and tried giving them that other report. It worked."

"Why did you do it?" She was looking penetratingly at him.

"Just a minute, Maria," said Peter. "Let me ask a few questions. What's your name, you?"

"Shane Everts."

"And you said you heard Laa Ehon talking to one of his officers. How did you happen to be there?"

"I was waiting to deliver my communications."

"And Laa Ehon just discussed it all in front of you—that's what you're trying to tell us?"

"They don't see us, or hear us, unless they want us," said Shane bitterly. "We're furniture—pets."

"So you say," said Peter. "What language did Laa Ehon speak in?"

"Aalaag, of course."

"And you understood him so well that you could tell there was a chance to make them think that the human they wanted was someone else than Maria?"

"I told you." A dull weariness was beginning to take Shane over as the fury died. "I'm a translator. I'm one of Lyt Ahn's special group of human translators."

"No human can really speak or understand the Aalaag tongue," said the man with the pipe, in Basque.

"Most can't," answered Shane, also in Basque. The weariness was beginning to numb him so that he was hardly aware of changing languages. "I tell you I'm one of a very special group belonging to Lyt Ahn."

"What was that? What did you say,

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Georges?" Peter was looking from one to the other.

"He speaks Basque," said Georges, staring at Shane.

"How well?"

"Well..." Georges made an effort. "He speaks it...very well."

Peter turned on Shane.

"How many languages do you speak?" he asked.

"How many?" Shane said dully. "I don't know. A hundred and fifty—two hundred, well. A lot of others, some..."

"And you speak Aalaag like an alien."

Shane laughed.

"No," he said. "I speak it well—for a human."

"Also, you travel all over the world as a courier—" Peter turned to Maria and Georges. "Are you listening?"

Maria ignored him.

"Why did you do it? Why did you try to rescue me?" She held him with her eyes.

There was a new silence.

"Yowaragh," he said, dully.

"What?"

"It's their word for it," he said. "The Aalaag word for when a beast suddenly goes crazy and fights back against one of them. It was like that first time in Aalborg, when I snapped and put the pilgrim mark on the wall under the man they'd thrown on the hooks to execute him."

"You don't really expect us to believe you were the one who invented the symbol of resistence to the aliens."

"You can go to hell!" Shane told him in English.

"What did you say?" said Peter quickly.

"You know what I said," Shane told him savagely, still in English, and in the exact accent of the London area in which the other had grown up. "I don't care whether you believe me or not. Just give up trying to pretend you can speak Italian."

A small dark flush came to Peter's cheeks and for a second his eyes glinted. Shane had read him clearly. He was one of those who could learn to speak another language just well enough to delude himself—but he didn't speak it like a native. Shane had touched one of his vulnerabilities.

But then Peter laughed, and both flush and glint were gone.

"Caught me, by God! You caught me!" he said in English. "That's really very good! Magnificent!"

And you'll never forgive me for it, thought Shane, watching him.

"Look now, tell me—" Peter seized one of the straightbacked chairs and pushed it forward. "Sit down and let's talk. Tell me, you must have some sort of credentials that let you pass freely through any inspection or check by the ordinary sort of Aalaag?"

"What I carry," said Shane, suddenly wary, "is my credentials. Communications from the First Captain of Earth will pass a courier anywhere."

"Of course!" said Peter. "Now sit down—"

He urged Shane to the chair; and

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Shane, suddenly conscious of the weariness of his legs, dropped into it. He felt something being put into his hands; and, looking, saw that it was a glass tumbler one-third full of a light-brown liquid. He put it to his lips and smelled brandy—not very good brandy. For some reason, this reassured him. If they had been planning to drug him, he thought, they surely would have put the drug in something better than this.

The burn of the liquor on his tongue woke him from that state of mind in which he had been caught ever since he had stepped into the taxi and found himself kidnapped. He recognized suddenly that he had now moved away from the threat involved in his original capture. These people had been thinking of him originally only as one of the human jackals of the Aalaag. Now they seemed to have become aware of his abilities and advantages; and clearly Peter, at least, was thinking of somehow putting these to use in their resistance movement.

But the situation was still tricky and could go either way. All that was necessary was for him to slip, and by word or action imply that he might still be a danger to them; and their determination to destroy him could return, redoubled in urgency.

For the moment the important thing was that Peter, who seemed to be the dominant of their group, appeared to be determined to make use of him. On his part, Shane was finding, now that his first recklessness of despair was over, that he wanted to live. But he did not want to be used. Much more clearly than these people around him, he knew how hopeless their dream of successful resistance to the Aalaag was, and how certain and ugly the end toward which they were headed, if they continued.

Let them dig their own graves if they wanted. All he wanted was to get safely out of here and in the future to stay clear of such people. Too late, now that he had answered their questions, he realized how much leverage against himself he had given them, in telling them his true name and the nature of his work with the Aalaag. Above all, he thought now, he must keep the secret of Lyt Ahn's Key. They would sell their souls for something that would unlock most alien doors—doors to warehouses, to armories, to communication and transportation equipment. And the use of the Key by them would be a certain way to his association with them being discovered by the Aalaag. He had been making himself far too attractive to them, thought Shane grimly. It was time to take the glamour off.

"I've got thirty minutes, no more," he said, "to get to the airport and meet the Aalaag officer who's flying me back to Lyt Ahn's Headquarters. If I'm not there on time, it won't matter how many languages I can speak."

There was silence in the room. He could see them looking at each other—in particular, Peter, Georges, and Maria consulting each other with their gazes.

"Get the car," said Maria, in

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Italian, when Peter still hesitated. "Get him there on time."

Peter jerked suddenly into movement, as if Maria's words had wakened him from a dream so powerful it had held him prisoner. He turned on Carlo.

"Get the car," he said. "You drive. Maria, you'll go with me and Shane. Georges—"

He spoke just in time to cut short the beginnings of a protest from the man with the pipe.

"—I want you to close this place up. Bury it! We may end up wanting better security on this than we ever have had on anything until now. Then get out of sight, yourself. We'll find you. You follow me?"

"All right," said Georges. "Don't take too long to come calling."

"A day or two. That's all. Carlo—" He looked around.

"Carlo's gone for the car," said Maria. "Let's move, Peter. We'll barely make it to the airport as it is."

Shane followed them back through the hall by which he had entered. Crammed in the back seat of the taxi between Maria and Peter, with Carlo driving up front, he had a sudden feeling of ridiculousness, as if they were all engaged in some wild, slapstick movie.

"Tell me," said Peter in English, in a voice that was friendlier than any he had used until now, "just how it happened you made that first mark in—where did you say it was?"

"Denmark," said Shane, answering in English also. "The city of Aalborg. I was delivering messages there and on my way back from that I saw two of the aliens, a father and a son, mounted on their riding animals, crossing the square there that has the statue of the Cymri bull—"

It came back to him, as he told them. The son, using the haft of his power lance to knock aside a woman who otherwise would have been trampled by his riding animal. The husband of the woman, suddenly mad with yowaragh, attacking the son bare-handed and being easily knocked unconscious. The woman trying to rescue the man and being killed for it—and all of them, who were human and in the square at the time, being forced to watch under Aalaag law while the man, still unconscious, was thrown onto the sharp points of the triple punishment hooks on the wall of a building on the edge of the square.

Shane had stood, for the half hour it took the man to die, almost within arm's-length of the two Aalaag sitting on their riding animals. He had been trapped into listening, as the senior of the two, who could have no suspicion he was within earshot of one of the rare humans who actually understood Aalaag, gently reproved his son for bad judgment in trying to save the woman from being trampled. Because of this, they had been forced to kill not one, but two, healthy beasts; and also to engage in a ritual of justice—which always had a disturbing effect on the others, no matter how necessary.

Remembering, Shane felt the inner center of his body grow icy with the

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recalled horror and the near-approach of his own madness. He told how he had gone on to the bar, drunk the bootleg rotgut the bartender had claimed was aquavit, how he had been set upon by the three vagabonds and killed or badly damaged two of them with his staff, before the third had run off. He had not intended to tell it all, movement by movement; but somehow, once started, he could not help himself. He told how, once more crossing the now-empty square, on impulse he had scratched the mark of the pilgrim beneath the body on the hooks, before returning to the airport.

"I believe you," said Peter.

Shane said nothing. Crowded together as they were, he was conscious of the softness of Maria's thigh, pressed against his; and the warmth of her seemed also to press in upon the iciness within him, melting it as if he was someone lost and frozen in a snowstorm that was now getting back life and heat from the living temperature of another human being.

He felt a sudden, desperate longing for her as a woman. Beasts were encouraged by the Aalaag to breed—particularly valuable cattle like those special human translator-couriers of Lyt Ahn; but living continually under the observations of the aliens as Shane and the others did, cultured a paranoia. They all knew too well the innumerable ways that could bring them to destruction at the hands of their masters; and when their duties were completed, their instinct was to draw apart, to creep separately into their solitary beds and lock their individual doors against each other, for fear that close contact with another could put their survival too completely in another's power.

In any case, Shane did not want to breed. He wanted love—if only for a moment; and love was the one thing the highly paid human servants of the First Captain of Earth could not afford. Suddenly, the warmth of Maria drew him like a dream of peace...

He jerked himself out of his thoughts. Peter was looking at him curiously. What had the man just been saying—that he believed Shane?

"Get someone to check Aalborg and ask people there what happened. The mark I made might still be there, if the Aalaag haven't erased it."

"I don't need to," said Peter. "What you say explains how the mark could spread around the world the way it already has. It would have to take someone who can move around as you can to get it known everywhere as the symbol of resistance. I always thought there must have been someone at the root of the legend."

Shane let the first part of Peter's comment pass without answer. The other man obviously did not understand what Shane had learned in his travels—the speed with which rumor of any kind could travel in a subject population. Shane had been present at the origin of rumors in Paris which he had heard again in this city of Milan less than a week later. Also, Peter seemed to be giving him credit for continuing to spread the mark around,

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himself; and that, too, was probably a matter on which it was better not to correct the other.

"But I think you ought to face something," Peter said, leaning hard against him for a second as Carlo whipped the taxi around a corner. "It's time to move on from just being a legend, time to set up an organization with practical goals of resistance against the alien, looking forward to the day when we can kill them all, or drive them off the Earth, entirely."

Shane looked sideways at him. It was incredible that this man could be saying such things in all seriousness. But of course, Peter had not seen what Shane had, up close, of the power of the Aalaag. Mice might as well dream of killing or driving off lions. He was about to say this bluntly when the instinct for survival cautioned him to go cautiously, still. Avoiding a direct answer, he fastened on something else.

"That's the second time you've mentioned a legend," he said. "What legend?"

"You don't know?" There was a note of triumph in Peter's voice. He did not offer to explain.

"There's talk all the marks are made by one person," said Maria, also in English, now. She had only a trace of Italian accent—Venetian. "By someone called simply the Pilgrim, who has the ability to come and go without the Aalaag being able to stop or catch whoever it is."

"And you, all of you, have been helping this Pilgrim, is that it?" said Shane, raising his voice.

"The point is," Peter interrupted, "that it's time the Pilgrim was associated with a solid organization. Don't you think?"

Shane felt a return of the weariness that had deadened him when he had first been abducted by these people.

"If you can find your Pilgrim, ask him," he said. "I'm not him, and I've got no opinions."

Peter watched him for a moment.

"Whether you're the Pilgrim or not is beside the point," he said. "The point still is, you could help us and we need you. The world needs you. Just from what you've told us, it's plain you could be invaluable just acting as liaison between resistance groups."

Shane laughed grimly.

"Not on the best day in the year," he said.

"You aren't even stopping to think about it," Peter said. "What makes you so positive you don't want to do it?"

"I've been trying to tell you ever since you kidnapped me," said Shane. "You're the one who doesn't listen. You don't know the Aalaag. I do. Because you don't know them, you can fool yourself that you've got a chance with this resistance of yours. I know better. They've been taking over worlds like this and turning the native populations into their servants, for thousands of years. Did you think this was the first planet they'd ever tried it on? There's nothing you can come up with by way of attacking them that they haven't seen before

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and know how to deal with. But even if you could come up with something new, you still couldn't win."

"Why not?" Peter's head leaned close.

"Because they're just what they say they are—born conquerors who could never be dominated or defeated themselves. You can't torture an Aalaag and get information out of him. You can't point a weapon at one of them and force him to back off or surrender. All you can do is kill them—if you're lucky. But they've got so much power, so much military power, that even that'd only work if you killed them all in the same moment. If even one escaped and had warning, you'd have lost."

"Why?"

"Because with any warning at all, any one of them could make himself or herself invulnerable, and then take all the time he needed to wipe out whole cities and sections of Earth, one by one, until the other humans who were left served you and anyone else who had been fighting the Aalaag up on a platter, to stop the killing."

"What good would it do just one Aalaag, to do all that," Peter said, "if he was the last one on Earth?"

"You don't think all the Aalaag in the universe are here, do you?" said Shane. "Earth, with only one Aalaag left alive on it, would only represent that much new homesteading territory for the surplus Aalaag population, elsewhere. In a year or less, you'd have as many Aalaag here as before; and the only result would be the humans who'd died, the slagged areas of Earth, and the fact that the Aalaag would then set up an even stricter control system to make sure no one like you rose against them again."

There was silence in the car. Carlo whipped them around another corner and Shane could see a sign beside the highway announcing that the airport was now only one kilometer distant. The warmth of Maria's body penetrated through his, and he could smell the harsh, clean odor of the all-purpose soap with which she must just this morning have washed her hair.

"Then you won't lift a finger to help us?" said Peter.

"No," said Shane.

Carlo turned the car onto an off-ramp leading up to the airport road.

"Isn't anybody willing to do anything?" burst out Maria suddenly. "Not anybody? Nobody at all?"

An icy, electric shock jarred all through Shane. It was as if a sword had been plunged clear through him, a sword he had been expecting, but a sword to take his life nonetheless. It cut to his instinctive roots, to the ancient racial and sexual reflexes from which yowaragh sprang. The words were nothing, the cry was everything.

He sat for a numb moment.

"All right," he said. "Let me think about it, then."

He heard his own voice far off, remote.

"You're never going to get anywhere the way you've been acting so far," he said. "You're doing all the wrong things because you don't

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understand the Aalaag. I do. Maybe I could tell you what to do—but you'd have to let me tell you, not just try to pick my brains, or it won't work. Would you do it that way? Otherwise it's no use."

"Yes!" Maria said.

There was a slight pause.

"All right," said Peter. Shane turned to stare at him.

"If you don't, it won't work."

"We'll do anything to hit at the Aalaag," said Peter; and this time his answer came immediately.

"All right," said Shane, emptily. "I'll still have to think about it. How do I get in touch with you?"

"We can find you, if we know what city you're coming into," said Peter. "Can you arrange to put an ad in the local paper before you come—"

"I don't have that much warning," said Shane. "Why don't I go into a shop in the center of a city when I first get there, and buy a pilgrim robe—a grey one like the one I'm wearing—and pay for it in a silver or gold Aalaag coin. You can have the shopkeepers warn you if anyone does that. If the description fits me, you watch the local Aalaag HQ and pick me up coming or going."

"All right," said Peter.

"One other thing," Shane said. They were almost to the terminal building of the airport. He looked directly into Peter's eyes. "I've seen the Aalaag questioning humans and I know what I'm talking about. If they suspect me they'll question me. If they question me, they'll find out everything I know. You have to understand that. If everything else fails, they have drugs that just start you talking and you talk until you die. They don't like to use them because they're not efficient. Someone has to wade through hours of nonsense to get the answers they want. But they use them when they have to. You understand? Anyone they question is going to tell them everything. Not just me—anyone. That's one of the things you're going to have to work with."

"All right," said Peter.

"What it means as far as I'm concerned, is that I don't want anyone who doesn't already know about me to know I exist."

He held Peter's eye, glanced meaningfully at Carlo and back to Peter.

"And those who aren't to have something to do with me in the future—if I decide to have anything to do with you in the future—should believe that I get out of this car now and none of you ever see me again."

"I understand," said Peter. He nodded. "Don't worry."

Shane laughed harshly.

"I always worry," he said. "I'd be insane not to. I'm worrying about myself right now. I need my head examined for even thinking about this."

The taxi pulled up to the long concrete walk fronting the airline terminal, and stopped. Peter, on the curb side of the car, opened the door beside him and got out to let Shane out. Shane started to follow him, hesitated, and turned for a second back to Maria.

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"I will think about it," he said. "I'll do whatever I can, the best I can."

In the relative shadow of the corner of the taxi's back seat, her face was unreadable. She reached out a hand to him. He took and held it for a second. Her fingers were as icy as Milan itself had been this morning.

"I'll think about it," he said again, squeezed her fingers and scrambled out. On the walk, he stood for a second facing the other man.

"If you don't hear from me in six months, forget me," he said.

Peter's lips opened. He appeared about to say something; then the lips closed again.

He nodded.

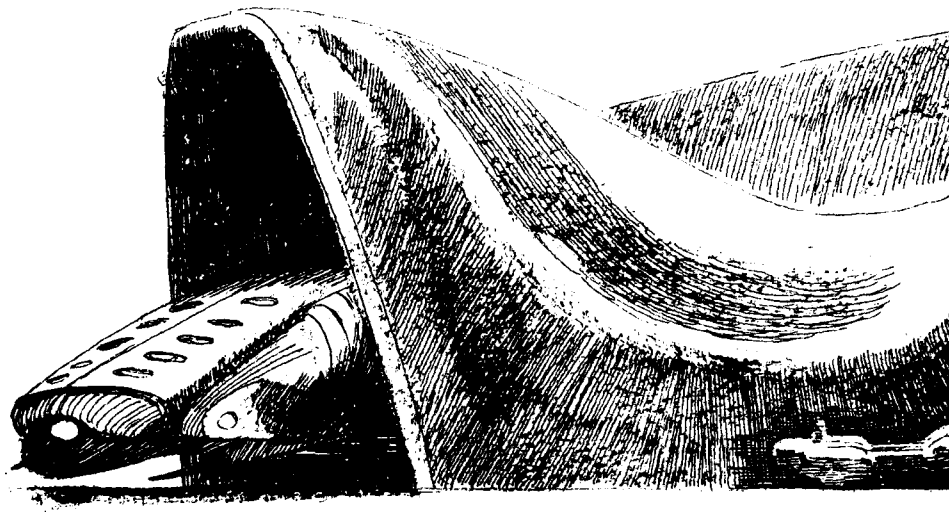
Shane turned and went swiftly into the terminal. Just inside the entrance doors, he spotted a terminal policeman and swung on him, taking the Key from his purse and exposing it for a second in the palm of his hand to the other's gaze.

"This is the Key of Lyt Ahn, First Captain of Earth," he said in rapid Italian. "I'm one of his special couriers, and I need transport to the Masters' section of the field, fast. Fast! Emergency! But do it without attracting attention!"

The officer snapped upright, jerked the phone from his belt and spoke into it. There was no more than a thirty second wait before an electric car came sliding through the crowd on its air cushion. Shane jumped into one of the passenger seats behind the driver, glancing at his watch.

"The hangars for smaller military craft!" he said. He hesitated, then made up his mind. "Use your siren."

The driver cranked up his siren, the crowd parted before him as he swung the car around and drove at it. They slid swiftly across the polished floor, out through a vehicle passway by the



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entrance to the field itself.

Once on the field, the car lifted higher on its cushion and went swiftly. They swung around two sides of the field and approached the heavily-guarded silver hangars housing the military atmosphere ships of the Aalaag. They slowed at the guard gate of the entrance to this area. Shane showed his Key and explained his errand to the human Special Guard on duty there.

"We've been warned to expect you," said the Guard. "Hangar Three. The courier ship is piloted by the Master Enech Ajin, who is of the thirty-fifth rank."

Shane nodded and the driver of the car, having heard, moved them off without any further need for orders.

In the hangar, the slim, dumbbell shape of the courier sat dwarfed by the large fighter ships of the Aalaag, on either side of her. Yet, as Shane knew, even these seemingly larger ships were themselves small as Aalaag warships went. The true fighting vessels of the Aalaag never touched planetary surface, but hung in continual orbit and readiness--as much for reasons of principle as for that there was no air or spaceport on Earth where they could have set down without causing massive damage.

He jumped down from the car as it paused by the open port of the courier vessel, and ran up the steps of the port, stepping into the cramped interior. It need not have been so

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cramped; but even this ship designed for carrying dispatches was heavy with armament.

The massive back of an Aalaag showed itself above one of the triple seats at the control panel in the front of the ship. Shane walked up to just behind the seat and stood waiting. This was not only his duty, but all that was necessary, even if the pilot had not heard him come in. This close to the other, he smelled the typical Aalaag body odor plainly; and the pilot was as surely scenting him. After a moment the pilot spoke.

"Take one of the seats farther back, beast." It was the voice of an adult Aalaag female. "I have two other stops to make before I bring you to the area of the First Captain."

Shane went back and sat down. After only a couple of minutes, the courier ship lifted and hovered lightly perhaps ten feet off the floor of the hangar. It slid out into the late daylight of the field, turned and went softly to a blast pad. At the pad it stopped and Shane let the air out of his lungs and laid his arms in the hollows of the armrests on either side of his chair.

For a second there was neither sound, nor movement. Then something like a clap of thunder, a great weight crushing him into the seat so that he could not move for a long moment—then sudden freedom and lightness, so that he felt almost as if he could float out of the chair. Actually, the feeling was exaggerated. He was still within gravity. It was the contrast with the pressure of takeoff that created the illusion of lightness.

He looked at the viewing screen in the back of the seat before him and saw the surface of the Earth below, a curving horizon and a general mottling of clouds. Nothing else. The look of no expression on Maria's face as he had left her came so clearly back into his imagination that it was as if her face floated before him in the air this moment. He felt the coldness of her fingers against his fingers, and her voice rang, re-echoing in memory in his ear—

"Isn't anybody willing to do anything? Not anybody? Nobody at all?"

They were all insane. He shivered. He had been wise to play along and pretend to consider their suggestion that he involve himself in their charade of resistance, that could only lead to torture and death at Aalaag hands. They had no chance. None. If he had seriously considered joining them, he would have been as insane as they were.

His heart beat heavily. The cold touch of Maria's fingers that lingered in his fingers seemed to spread up his arms and all through him. No, it was no use. It made no difference that they were insane.

He had no choice. Something within him left him no choice, even though he knew what it would mean. He would do it even though he knew it would mean his death in the end. He would seek them out again and go back to them. Join them. ■

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Jay Kay Klein's

BIOLOG

A legend in his own time. Alone among science fiction writers, Gordon R. Dickson has achieved a personal reputation akin to that of Ernest Hemingway. At science fiction conventions, crowds of young people surround him, drawn to a dashing, dynamic figure some six feet in height and never still. Some of these are members of a costumed troupe calling themselves "Dorsai Irregulars," named after the master's most famous literary creation: a world of fighting men who are one of the three human archetypes dealt with in the Childe Cycle. There are even songs about him, one to the tune of the "Armour Hot Dog" theme.

He is an academic student of strategy and martial arts, a Medievalist, and an imbiber of heroic proportions. But he avoids fights as unworthy of a civilized man; he deals most intimately with the future, and is seemingly immune to the effects of ethanol.

Born in Alberta, Canada, he has been a Minneapolis resident since age fourteen. He early decided to be a writer, turning from historical novels to science fiction shortly after graduation with a B.A. from the University of Minnesota. His first published story was a collaboration with Poul Anderson in 1950. Gordy soloed with the February, 1951 issue of this magazine, and like Poul, has since supported himself entirely by writing science fiction and fantasy.

There were barely a handful in the 1950s able or willing to do that. For Gordy, times were lean at first, and he lived on peanut butter sandwiches made with day-old bread, supplemented by vitamin pills. When times were worse, he sold blood to keep going, and early adopted the businesslike technique of smoothing the peaks and valleys of a free-lance writer's income by use of bank credit.

Gordy received a Hugo for *Soldier, Ask Not* in 1965 from the world science fiction convention in London. An expanded version of this has been printed this year by ACE Books. This is one of the "Childe Cycle" series, a future history in twelve novels stretching back to the fourteenth century and forward to the twenty-fourth. In this, the author presents a theme of the perfectability of Man with evolutionary time. Among other awards, he received a Nebula in 1966 from the Science Fiction Writers of America, and the August Derleth Award in 1976 from the British Fantasy Society for *The Dragon and the George*. He is also one of the recipients of the New England Science Fiction Society's Skylark award for imaginative fiction.

Another Dorsai book recently in print from ACE is *The Spirit of Dorsai*. Being written now is *The Final Encyclopedia*, which will make five of the projected six Childe Cycle novels set in the future.

Gordon R. Dickson

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DEATH RISK

Every activity involves risk—
but the magnitude
of that risk is not always
what you'd guess.

MILTON A. ROTHMAN

There are few things I know for sure. One of them is this: if I don't die of one cause I certainly am going to die of another.

This being the case, why all the fuss about death risks? If you don't die of cancer you will probably die of heart disease. Then why worry about radiation hazards? Why bother to clean up the environment? What difference does it make if a nuclear accident causes a thousand cancer deaths? A lot of those people would have died of cancer with or without a nuclear accident. And if there is an accident, be comforted by the fact that all the victims would have died anyway, sooner or later.

This peculiar state of affairs is known among demographers as the Taeuber Paradox. It doesn't take long to figure out the fallacy in the above paragraph. The giveaway is in the expression *sooner or later.* The important factor we have left out of the logic is *time.* Some causes of death strike before others. Therefore if a cause of early death is eliminated, you live longer, and if this is done for the entire population, then the average lifetime of the population will be increased.

Because of the time factor, a lot of the figures bandied about concerning radiation risks don't mean a great deal. It is not too informative to be told that so many millirem of radiation will produce so many cancers, because it takes 20 to 30 years for these cancers to germinate, and by that time the people involved might already be dead of other causes.

It is more informative to know how a particular risk changes the average lifetime of the population if that risk is sustained over a long period of time. If we know that risk A reduces the average lifetime by two years, while risk B reduces the average lifetime by one year, then we can say that risk A is twice as bad as risk B. It makes a neat way of comparing risks.

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Another way of looking at it is to ask how much the average lifetime would change if a particular risk were removed. In that event we would expect an increase in the average lifetime. For example, in the year 1900 the average lifetime in the United States was only 48 years. (Statisticians call this number the *life expectancy,* because if people on the average live to be 48, this is how long you expect to live. In reality, of course, some people live less and some people live longer than average.) By 1975 the life expectancy had risen to over 72 years, largely as a result of improved public health and the eradication of contagious childhood diseases such as smallpox, scarlet fever, polio, etc. (Anybody who thinks the health professions haven't done anything for us ought to contemplate these figures.)

You see that elimination of certain early risks has dramatically increased the mean lifetime. One consequence of this situation is that a large number of people now live long enough to get the cancers and heart diseases that they didn't get in the good old days, simply because they didn't live long enough. Another consequence is that since people now *expect* to live to be at least 72, they are much more upset than they used to be over the prospect of dying at 50 or 60. A 60-year-old man does not seem old nowadays. (I am just 60.)

For this reason environmental risks are taken more seriously now than they were previously. Now that science has increased the average lifetime from 48 to 72, the public resents the possibility that any of the byproducts of science might take a little bit away from those extra years that have been gained. This is a natural reaction, but too often judgments about risks are made on a basis other than reality. (For example, small amounts of radiation are feared more than large amounts of cigarette smoke or coal dust.)

In order to make valid judgments about risks, we must be able to make numerical comparisons between various competing risks. We would like to ask: how much will nuclear power affect the average lifetime compared with coal power? However, before we do that, we should know what is the present risk of dying due to all causes. Then it is easy to see what happens when one particular risk is increased or decreased. We can get this information from statistics published by the U.S. Department of Health, Education, and Welfare. From their 1975 Life Tables much of the data for this article was obtained.

What these Life Tables do is to assume a group of people (a cohort) born at a given time. Then they suppose that during their lifetime these people are exposed to the same risks that prevailed during a particular year—in this case 1975. The tables then show how many people out of the original group of 100,000 will still be alive after a given number of years have elapsed. The results can be put into the form of a graph called a survivor's curve (Fig. 1). (This particular

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curve is for the total population. Statistics are available for males, females, whites, and non-whites. The various groups show important differences: women live 7.8 years longer than men, on the average, and whites live 5.3 years longer than non-whites, on the average.)

The important features of the curve are plain to see. There is a brief drop of about 2% during the first year or two, there is an almost flat period till about age 30, and then the decline gradually steepens until by age 76 half of the original group is gone. (Note: this half-life of 76 years is not the same as the average lifetime of 72.5 years.) Beyond age 90 there are few left.

We can now go ahead to answer many interesting questions. Such as: out of those still alive at the beginning of a given year, how many will die during that year? Even more interesting: what *fraction* of those alive at the beginning of a year will die during that year?

For example, we find that at age 40 there are 94,226 survivors, and at age 41 there are 93,973 survivors. This means that 253 people died during that year. Dividing 253 by 94,226 we find that 0.00269 (0.269%) of the people reaching the age of 40 died during the following year. But this number is exactly what the statisticians mean by a probability. The numbers tell us that the probability of dying between the ages of 40 and 41 are 0.00269 or 2.69 chances out of a thousand.

Proceeding further, we find that out of the 65,529 surviving to age 70, 2,176 (or 3.32%) will die during the next year. Going from age 40 to age

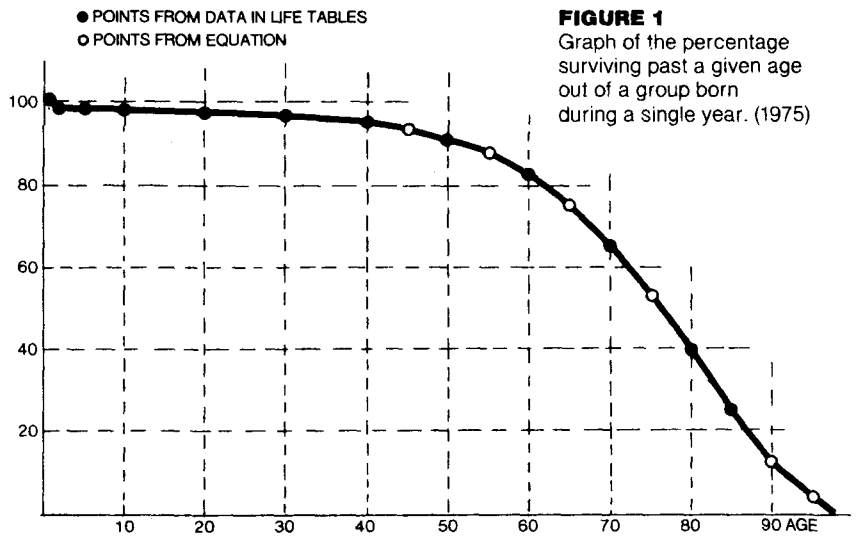

FIGURE 1
Graph of the percentage surviving past a given age out of a group born during a single year. (1975)

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70, the probability of dying increases more than tenfold to 33.2 parts out of a thousand. There is nothing startling about this; the older you get, the greater your chances of dying in any given year.

What we would like to know is exactly how this probability increases with time. What is the mathematical relationship? To get a handle on this we plot a graph that shows the probability of dying during a given year, using the data in the life tables (Fig. 2). Study of this graph shows a number of important features. First of all there is the dip during the first few years. This dip arises from genetic defects and sundry ailments that very small children are prone to. Once they make it past the age of 5 they are relatively on safe ground. Then, past the age of 15 the curve rises again and becomes a strikingly straight line. (A comparison of this curve with those from the earlier part of the century, or with those from underdeveloped countries, shows the low portion of the curve lying much higher than the U.S. 1975 curve. The effect of medicine and public health has been to depress the middle, low-lying section of the curve.)

Now let's look carefully at the straight line that we find between ages 30 to 80. Notice first of all that the vertical scale is a logarithmic scale. Going up by equal intervals on the graph means that the number is multiplied by a constant factor. Each main division on the scale means a factor of 10 increase in probability.

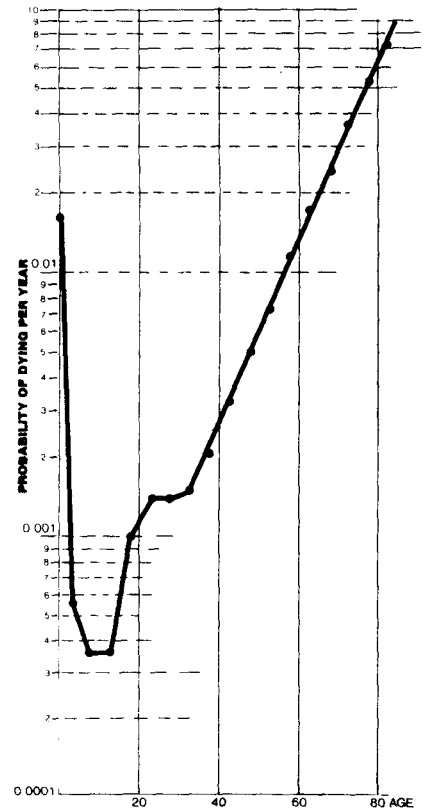

FIGURE 2
The probability of dying in a given year, for a group born during a single year.

A straight line on a semilogarithmic plot like this has but one meaning to any mathematically trained mind. The probability of dying increases *exponentially* as you grow older.

Exponential increase is the kind of increase you get from compound interest, or from any kind of growth that takes place at a constant annual rate. If you invest money at an 8% interest rate (compounded continuous-

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ly), in 8.6 years your money will double. In another 8.6 years it will double again. And so on.

That is exactly how the death curve rises. The probability of dying increases at an 8% annual rate, and doubles every 8.6 years. What happens beyond age 80? The tables merely give the probability for the group 85 and over. This number is 1.0000.

Alle Menschen müssen sterben.

Generally speaking, rising exponentials like this one come from specific reasons, usually related to positive feedback. As far as I can tell, and I have asked some people who ought to know, there is no generally accepted explanation for the life curve. We can speculate about the growth of mutated cells within the body, or the decay of immune mechanisms, or a combination of the two. Clearly, this is a major topic of research at the present time.

Regardless of the cause, the nature of this curve hints to us that there is a rock-bottom level of mortality that is built into human physiology, and that after you subtract out the effects of bacteria, viruses, and other environmental factors, the cells themselves gradually wear out. In other words, the body is not designed to last much more than about 110 years. We would expect that efforts to increase this basic longevity will have to aim at the fundamental molecular processes, and some scientists believe that cellular aging can indeed be slowed down.

Once we know that the probability of dying is represented by an exponential curve, it is a very simple matter to write down the equation that represents the curve. In doing this we ignore the bottom part of the curve and use only the straight part. This will make little error in any calculations we perform with the equation, because relatively few deaths occur before age 30.

Now we have a mathematical equation from which we can calculate the probability of dying at any given age (past 30). (See the Appendix for details.) From this equation we can derive another equation—an equation that tells us how many people will survive to a given age. But that's just the information we plotted in Fig. 1. So now we have equations that fit both curves, and with these equations we can calculate such things as average lifetimes, the probability of surviving to a given age, and—most important—what happens to the average lifetime if certain risks are varied by a given amount.

Since the mathematics does become rather sophisticated, we can save ourselves a great deal of trouble by using the graphs to draw some conclusions, instead of working with the equations. To demonstrate, let us ask the following question: suppose a catastrophe occurs that causes the probability of dying each year to double. How does this affect the average lifetime?

To answer this question we simply double the value of every point of the straight line of Fig. 2. The result is that this line slides straight upward without changing direction (See Fig. 3). (Remember that when you multiply a

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a calendar of upcoming events

log

1-3 August
SON OF PARACON (Pennsylvania SF conference) at Sheraton Penn State Inn, State College, Penna. Guest of Honor—Charles L. Grant. Fan Guest of Honor—Richard Frank. Guest Artist—Frank Kelly Freas. Registration—$6 until 30 June, $8 thereafter. Info: Son of Paracon (Paracon 3), c/o Bob Castro, 425 Waupelani Drive, #24, State College PA 16801.

15-17 August
STARCON '80 (North Jersey SF Convention) at William Paterson College, Wayne, NJ. Many guests, many events, films and more! Three day registration is $20 until 30 June. For other rates and details: Starcon '80, Anthony Patti, 22 Lois Ct., Wayne, NJ 07407.

17-19 August
MICHICON '80 (Flint area SF conference) at the Flint Cultural Center, Flint, Mich. Guests of Honor—Ted Sturgeon and Chip DeLany. Registration—$20. Info: Futuria Club/Flint Michicon, 1916 Cadillac, Flint MI 48504. 313-234-4062.

24-30 August
International Conference on Nuclear Physics at University of California, Berkeley, Calif. (IUPAP, NSF, DoE, LBL) Info: ICNP, Nuclear Science Division, Lawrence Berkeley Laboratory, Berkeley CA 94720.

29 August-1 September 1980
NOREASCON TWO (38th World Science Fiction Convention) at Sheraton-Boston Hotel and Hynes Civic Auditorium, Boston, Masstts. Guests of Honor—Kate Wilhelm and Damon Knight, Fan Guest of Honor—Bruce Pelz, Toastmaster—Bob Silverberg. Registration—$30, non-attending membership $8 at all times. Registration $45 at the door. This is the SF universe's annual get-together. Professionals and readers from all over the world will be in attendance. Talks, panels, films, fancy dress competition, the works. Join now and get to vote for the Hugo awards and the John W. Campbell Award for Best New Writer. Info: Noreascon 2, P.O. Box 46, MIT Branch Post Office, Cambridge MA 02139.

ANTHONY LEWIS

*Items for the Calendar should be sent to the Editorial Offices, **four months** in advance of the issue in which you want the item to appear.*

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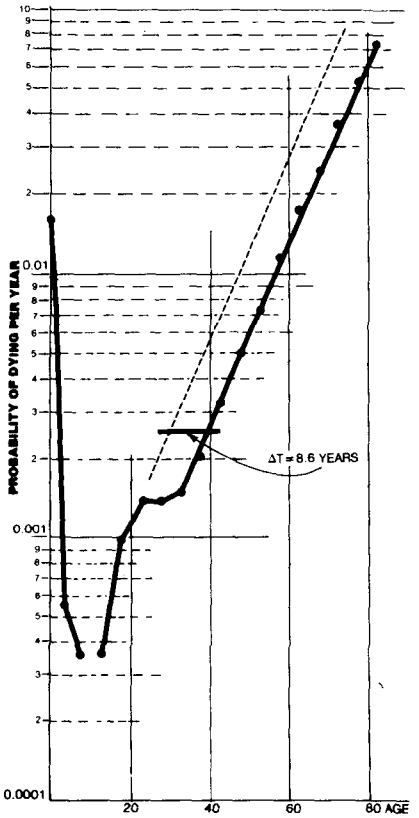

FIGURE 3 The probability of dying per year is doubled. This change is equivalent to shifting the line to the left by 8.6 years.

number by 2, you just add 0.3 to the logarithm of that number, so doubling just raises each point on the curve by the same value.) Now notice that the same result could be obtained by sliding the straight line to the left a distance of 8.6 years.

In other words, the new curve, with double probability of death, is just like the old curve, but with everything happening 8.6 years sooner. The result is that doubling the death probability reduces the population life expectancy by 8.6 years. (This argument glosses over some details, but the results can be verified by using the equations in the Appendix to calculate the new life expectancy and seeing that to a good approximation the simple argument given above is correct.)

Now this sounds like a paradoxical result. You would think that doubling the death risk would cut the average lifetime in half—from 72.5 years to about 36 years. Instead, the life expectancy is reduced to about 64 years. The catastrophe is not catastrophic as we might have expected naively. The reason for this result lies in the steady rise of death risk that goes on all the time. If right now something happens that doubles your risk of dying, it simply puts you in the same place that you would have reached normally, 8.6 years from now.

Well, 8.6 years may or may not sound like a big change; it depends on your point of view. So here is another example to try out for size: what would happen if all cancer was eradicated from the population? How would this affect the average lifetime?

Looking in the appropriate tables *(Health, United States, 1976-1977,* U.S. Department of Health, Education, and Welfare) we find that cancer causes about 28% of the deaths in those above 40, and the percentage is roughly constant with age. This means that if we remove cancer as a cause of death, we must lower our probability

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line by a factor of 28%.

This operation results in moving the line to the right by approximately 4 years. Repeat: *as a consequence of getting rid of all cancer, the life expectancy of the U.S. population is increased by only 4 years.* (In reality, less than 4 years, since people prone to cancer are also prone to other diseases.)

It would seem that the mountain has labored to bring forth a mouse. All of the billions in cancer research going into an effort that will increase the population lifetime by a mere 4 years! Why is this?

Fig. 4 explains why this is. Suppose we could suddenly miraculously, get rid of cancer at one point in time. The probability curve would suddenly drop to a lower level. However, all the other causes of death would continue to increase exponentially in their usual way, and after 4 years the probability of dying would be right back where it was before—just delayed a little bit.

Of course, we must realize that the 4-year figure is just a bare statistic and doesn't tell the whole story. Partial truths are almost as bad as lies. First, a 4-year increase in life expectancy is a big, big effect. It means a lot of extra man-years for the population as a whole. Now that infectious diseases have been conquered to a large extent, further increases in mean lifetime are hard to come by. Every extra year from here on out is going to take a big effort. Second, some individuals gain much more than 4 years through the cure of cancer. Remember, the 4 years is only an average. Third, cancer is a

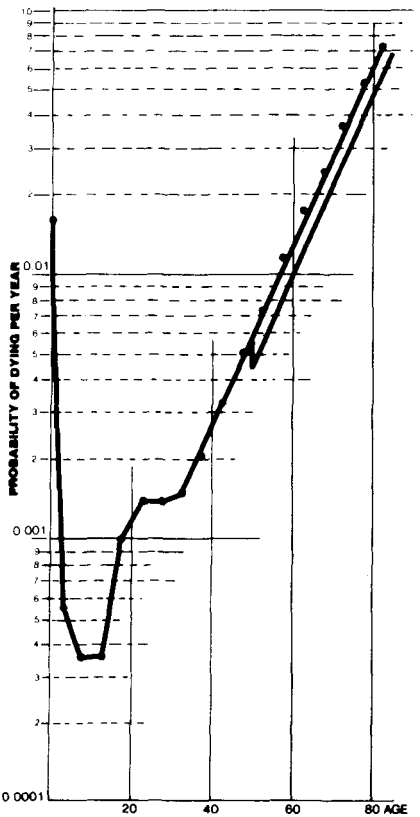

FIGURE 4 If the probability of dying decreases by 28%, this is equivalent to shifting the *probability line to the right* by 4 years. If the change suddenly occurs when the cohort is at age 50, then age 54 the probability of dying is just as great as it was before the change took place.

nasty, painful, and expensive way to go. So even if you merely replace cancer with heart failure, that's some kind of improvement.

Now getting rid of all cancer must still be considered a fantasy for the future. However, there is one im-

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provement that *could* be made right now if everybody *wanted* to hard enough. And that is for everybody who smokes to give it up. The risks of tobacco smoking have been publicized enough, but they are put into a new light by a study recently reported in the *New England Journal of Medicine.* A group of 4,000 smokers was followed for 11 years and the death rate for this group was compared to that of a similar group of non-smokers. (Ages were between 35 and 54 at the beginning of the study.) Notice that it was the *total* death rate—from all causes—that was being compared. Not just lung cancer or heart disease. The death rate among the smokers was 9.02 per 1,000 person-years, and 3.54 per 1,000 person-years among the non-smokers. In other words, the smokers had a death rate 2.6 times greater than non-smokers during that period of time. Their risk of death more than doubled!

In terms of life expectancies, these numbers mean that the smokers have 10 years less average lifetime than the non-smokers. The effect on the total population depends on how many people smoke. Recent figures indicate that about 33% of the population smokes. We would expect the overall life expectancy to be reduced to 3.3 years as a result. Any way you look at it, this is a big, big effect. And it is an environmental factor that can be turned on and off at will. It is a much bigger factor than many environmental hazards that commonly arouse national hysteria. (It would be interesting to know how many anti-nuclear demonstrators smoke. The statistics are not yet in on pot, but from general principles I would not like to have any kind of smoke in intimate contact with the cells of my lungs.)

With the growing clamor concerning nuclear energy, the only way to put a sensible perspective on the situation is to perform the same kind of analysis concerning radiation risks as we have done for cigarette smoking. I don't like the kind of glib argument that says: if we have X number of nuclear reactors, then there will be Y number of cancers as a result. It makes more sense to say: if we have X number of nuclear reactors, then this will produce a certain change in the probability of death each year, and the result will be a loss of N years from the life expectancy of the population. This gives us a number that can be compared meaningfully with the risks from other methods of producing energy.

It happens to be a difficult kind of analysis to do, because you must know in detail how a given amount of radiation affects the death rate over a period of time. However, we can make a rough stab at it and hope that our results are not wrong by more than a factor of 2 or 3. Which, under the circumstances, is close enough.

We create a scenario like this: the maximum level of radiation allowed at the boundary of a nuclear power plant is 5 millirem per year. It is estimated that if nuclear power capacity increases to 800,000 megawatts by the year 2,000, then the

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exposure to the general population will average out to something like 1 millirem per year per person.

We then go to the chart that says the cancer risk from radiation is about 0.0003 cancers per person per rem exposure. Multiplying this number by 0.001 rem per year, we find that the probability of developing cancer from nuclear power under the conditions given is about 3×10^{-7} per person per year. Comparing this number with the present cancer death rate (and assuming that each additional cancer will result in a death, which is overestimating the risk) we find that the nuclear radiation increases the probability of dying of cancer by 0.005%. This raises the probability curve by an amount too small to read on the graph.

Since we can't find the change in life expectancy from the graph, we must go to the equations. Application of a little calculus to the first equation in the Appendix gives us the following formula: the change in mean lifetime (in years) is equal to the percentage change in probability of death due to the added risk (0.005%), divided by the annual percent increase in the probability of death due to all causes (8%). Putting in the numbers: 0.005/8 equals 0.0006 years, which comes to about 5 hours.

In other words, the assumed increase in risk produces a loss of 5 hours out of about 72 years life epectancy—a change of about 8 parts per million. Is this worth worrying about? Well, that depends on your point of view. It depends on the kinds of things you like to worry about. (And that's why discussions of these matters are often so futile—different people worry about different kinds of risks).

For example, an increase of 8 parts in a million results in approximately 27 additional deaths per year out of the whole U.S. population. That makes nearly 2,000 deaths over a lifetime.

Headline: NUKES KILL 2,000 PEOPLE.

Sounds bad, doesn't it? But hold on a minute. Right now, medical diagnostic X-rays are zapping the public with a dose estimated to be 72 millirem per person per year, on the average. That's 72 times greater than the figure we gave for all the nuclear power plants projected for the year 2000. Using the same arithmetic, we could just as well write a headline: MEDICAL X-RAYS KILL 144,000 PEOPLE.

That's called lying with statistics.

After all, the medical X-rays are needed to prevent deaths by illness in the first place. The X-rays might cause 1,940 deaths per year, but how many would have died *without* the X-rays? The idea is to prevent more deaths than you cause. Otherwise the business is not cost effective.

The argument could be made that the risks from X-rays differ from the nuclear power risks in that one risk is willingly assumed, while the other is imposed on him when he takes a medical X-ray. Regardless: the risk is assumed willingly or unwillingly in order to obtain a benefit.

Furthermore, you can obtain the

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benefits of X-rays while reducing the risk simply by improving the equipment and photographic techniques, and by not X-raying people especially sensitive, such as fetuses in utero. By reducing the average X-ray dose by a few millirem per year we can more than compensate for the additional dosage gotten from nuclear power.

Another way of looking at it is to notice that inhabitants of high places such as Denver get twice as much cosmic radiation as do sea-level people. The background radiation at sea level is about 100 millirem per year. Living in Denver adds another 100 millirem per year. So the radiation risk projected for nuclear power plants is only 1% of the *extra* risk that people in Denver already live under. Is this something to worry about?

Those who insist on worrying will worry. Behold the hysteria that prevailed at Three Mile Island, where the radiation dose due to accidental leakage was much less than the *extra* radiation that people in Denver live with normally.

You must understand that so far I have been discussing only the normal operating risks of nuclear power. Problems with truly catastrophic accidents, waste disposal, and the proliferation of fissionable material are a horse of another color. I am not fanatically disposed in favor of nuclear power, being a fusion man myself. My purpose is merely to warn against irrational and superstitious fear of radiation risk. The way to avoid such fears is to look at the numbers and see that normal radiation risks are much less serious than many risks we live with continually.

By now it is a banality to say that anything you do has some risk. It is not so commonly noted that even doing nothing creates risk. Suppose, for example, that we do nothing to increase the supply of energy to meet the demand. Then comes hot summer days when we have power blackouts. It is noticed that the death rate among the elderly goes up sharply on such days. Air conditioning is not a luxury for everybody. It can be as much a necessity as antibiotics.

Therefore the only way to discuss risks intelligently is by comparing the risk of one course of action against another. Herbert Inhaber (a consultant for the Canadian Atomic Energy Control Board) makes this point in the February 23, 1979 issue of *Science* (the journal of the American Association for the Advancement of Science). Inhaber compares the risks associated with the production of power by all the usual methods, and surprisingly concludes that solar energy is even more risky than nuclear power.

This sounds like a most paradoxical statement, going against all preconceived notions. However, the way Inhaber arrives at this conclusion is to add up *all* the risks connected with a given power source. Not just the risks associated with the operation of the plant, but the risks that go with the construction of the plant and digging the raw materials out of the ground. Solar power is very dilute, requires

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large structures, and so requires very large expenditures of material per kilowatt output. Therefore the risks connected with digging the materials for the concrete, the copper, the steel, the silicon, the risks of the refineries, the transportation, the plant construction—all of these well-known occupational risks are relatively high for solar power. Even installing a solar heating panel on the roof of a house involves the risk of falling off the roof, or at least dropping something off the roof.

Inhaber has been roundly criticized for numerical errors in some details of his calculations. For that reason I am not going to quote his exact conclusions. Better calculations will surely be made in the future. Nevertheless, the basic idea remains true: in order to talk about risks properly, you must compare risks of different courses of action. And when you do that you must include all the risks, from the beginning to the end of the process. You must tell the whole truth, not just a part of it. Under these conditions solar power turns out to be not as completely benign as its enthusiasts make it out to be.

The risks of solar power are easily overlooked because they are hidden in the background. The consumer doesn't see them. All the risks are borne by the copper miners, the gravel-pit operators, the steel workers, the electrical workers, and

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all the others who make it possible for that clean electricity to flow from the consumer's outlet at the flick of a switch. To some extent this is true of fossil fuel power also. For many years the housewife was completely unaware of and uninterested in the coal miners who were the ultimate producers of the energy she used.

We have here an area of ethics which needs exploration. Does the consumer have a right to clean energy with no risk attached, while the coal miner and oil driller and nuclear worker operate under a high level of risk? The argument is usually made that high risk is allowable if the individual involved enters into that risk voluntarily (like when you get into your car to drive down the road), while risks imposed from the outside by industry and government are intolerable in any degree. I am not sure that this argument is completely tenable. Not all coal miners really want to be there.

On the other hand, it is simplistic to make the argument that, well, the caveman had risks from sabre-toothed tigers, and medieval man had risks from the plague, and since man has always had to live with risks we should stop whining and live with our risks as best we can. (And get rid of EPA.) While it's true there has always been risk, and the average person lives with less risk now than ever before, that's what civilization's all about. We've gone to a lot of trouble to create this civilization where the average person can live better and longer than he could before. What we don't want to do is to backslide because of the excesses of this civilization. So risk assessment becomes a full-fledged academic specialty and the debate goes on furiously.

There are those who would call down a plague on both houses and turn away from modern civilization, expecting that a return to rural simplicity will solve all their problems. I imagine that a great many of these people are too young to remember what it was really like in that nostalgic era we imagine to have existed at the turn of the century. Just try to picture what it must have been like at a time when the life expectancy was only 48 years. Visualize the fantastic increase to the present 72 years, and understand what has been done to create that increase.

When the 20th century is reviewed, this increase in life span, with all its ramifications, may turn out to be the most important single development of the century.

Whatever happens in the future, I want the world to have enough of a technological base to support the manufacture of polio vaccines and computerized X-ray machines. I want to have enough power and mobility so that I can get quickly to a doctor when I need one, and so that I can have a reasonable amount of air conditioning.

In some ways the world has gone downhill during the past 50 years, but I am old enough to remember the terrors of diphtheria and scarlet fever. Old enough to remember the young man

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just quietly keeling over at the desk next to me in a non-airconditioned Washington office with the thermometer hanging around 95°. We've come a long way (all of us) and I don't want to give up the good things we've gained.

So I propose a new motto: ENERGY IS GOOD FOR YOUR HEALTH. And if you think having energy is too risky, just think about how risky it is not to have it. ■

APPENDIX

Consider a number of people born in a given year. We will call this number n_0. Let n be the number of people who survive past the time t. If n_0 is taken to be 100, then n will be the percentage of survivors at time t. Let dn be the number of people who die during the interval of time dt. The fraction dn/n represents the probability pdt of dying during the interval of time dt. From Fig 1 we see that this probability is a rising exponential, so we make the hypothesis that it can be written in the form

$$\frac{dn}{n} = -pdt = -ce^{at}dt \qquad (1)$$

(The minus sign arises because n is decreasing as t increases.)

Those of you familiar with the theory of radioactive decay will recognize the left side of the equation. In the radioactivity problem the probability of an atom disintegrating per unit time is a constant. Here p is an exponential function of the time. Constants c and a are numbers to be determined from the data.

Equation (1) may be integrated to find n, the number of people left alive at time t:

$$n = n_0 \exp[b(1 - e^{at})] \qquad (2)$$

where $b = c/a$. A very good fit to the life tables of 1975, using data for the whole population, can be obtained with the numbers $n_0 = 98.4$, $a = 0.0801$, $b = 0.00153$, $c = 0.000122$. (Using 98.4 for n_0 instead of 100 takes into account the small drop during the first year, which the above equation does not include.)

A comparison of the data points and the theoretical points of Fig. 1 shows agreement as good as you will ever find in a graph.

The unusual nature of Equation (2) is apparent. It is an exponential of an exponential. For small values of t, the quantity in brackets stays close to zero and n decreases linearly. When t gets past 40, then the e^{at} term zooms up, the quantity in brackets becomes a large negative number, and rapidly drops toward zero.

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SCROOGE IN SPACE

Philanthropy is a fine thing, but there's philanthropy—and then there's philanthropy.

SAM NICHOLSON

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I have been a Company troubleshooter for so many years that no job surprises me. The problems I face with the Company subsidiary Space Mining, Inc. are basically the same as the old hassles with the sea fleet. Thick skulls are no smarter for being inside space helmets.

The only drawback about working out of Moon Residence is that Earth news is remote. I never find time to catch the network relays, and our own frequencies are pretty well tied up with moon business and audio-exchanges with the Trailer Wheels that follow the moon around the Earth like a conga line, neatly containing their traffic within a single space alley.

Consequently, as soon as I am back at Space Mining's Assembly/Launch Complex on Cape Canaveral, I check into Transient Quarters with a stack of newspapers—mainly, I gotta admit, to read the sports sections. It takes a while for me to get around to the front-page headlines.

So I was wedged into an easy chair, with my shoes off and a Scotch-and-water in my fist, reading a play-off postmortem, when the phone rang. I set down my glass, lifted the phone and muttered absently, "Yeah?"

"Good afternoon, Captain Schuster," said a familiar, precise voice. Mickleberry, from Operations in New York. "You will already have deduced from today's headlines why we would like you aboard the shuttle turn-around tomorrow."

I was not exactly surprised, but I felt caught off base. I said, "Jeez, Mickleberry, I just got here an hour ago! I ain't even looked at a headline!"

"Kindly do so. And call me back."

He hung up. I put down the phone and dug a news section out of the pile beside my chair. The headlines seemed the usual guff. The Mid-East. Inflation. Politics. Then my eye caught, GREED KILLS SPACE FOOD. I scanned rapidly until I came to the nitty-gritty:

"...Company's foreclosure on the two-million-dollar loan was entirely unexpected, said Wheel Director Hansen. The other creditors, the Wheel Development Agency, the Research Subsidizing Agency, and the Space-Sharing Expansion Fund, have extended their loans despite UN Conglomerate's non-payment of interest.

"The shipping company's loan is a small part of the Wheel's three-billion indebtedness, and Director Hansen expressed bitterness at the American corporation's lack of understanding."

I had known the UNC Wheel was in financial difficulty, but I had not realized the debt had shot up to three billion.

Of all the Trailer Wheels, the Japanese probably were making the most profit, with their life-support systems. The Germans were doing okay with their ion-souped deep-space engines, and the French were revolutionizing pharmaceuticals with their cosmic ray bombardment techniques.

The Wheels had been started because certain processes could be done more cheaply or more effectively in space. Also, it was beginning to make sense to manufacture space products

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where the market was. Our moon Residence was now using Trailer hardware exclusively—and the Wheels were buying metals from our moon operation because they cost a fraction of Earth metals.

In short, space manufacturing was a good deal for everybody, including Earth consumers.

The UNC Wheel had seemed like a good deal, too. They were to grow food for all the space colonies. At first, they had a good market. But their food prices increased to where our Residence had to stop buying. Apparently the other colonies also found it cheaper to grow their own food or import from Earth.

With no income, the UNC Wheel had begun borrowing, and then had borrowed to meet the interest on previous loans, and then had stopped paying interest. UN agencies, with fictional credits, had gone on lending. The Company, which had to observe legal commitments and answer to stockholders, had foreclosed, thus sticking a pin into the whole inflated bubble.

I could not understand why Mickleberry wanted to send me back to the moon. UNC's failure was none of our business.

However, as I leafed through the newspaper, I saw we were getting bad press. The Russians were calling us an example of capitalist indifference to human suffering. The Scandinavians were condemning us for not putting space employment and welfare ahead of private profits.

Countries who have kept afloat a couple generations by scrounging foreign loans have a hard time understanding that money has to be earned, not just printed.

Even the paper's editorial page was advising us to "show compassion to a model space colony."

It wasn't the editor's two million bucks, of course.

I phoned Mickleberry. "Okay, so we're dirty capitalist pigs. What do you expect me to do about it?"

"The Company foreclosure has forced the UNC Wheel to choose between bankruptcy or reorganization," he explained. "We want the reorganization to be on our terms. Go out there—inspect the Wheel—and tell us how the food project can be made to pay."

"Hell, I can tell you *that* without even putting on my shoes."

Mickleberry coughed. "Perhaps I should have said, tell us how UNC has gone bankrupt, supplying the most valuable commodity in space."

I was kinda curious, myself. The UNC Wheel sure must have worked overtime, digging themselves into a three-billion-dollar hole.

The Space Mining astronauts got a laugh out of seeing me trudge aboard the shuttle I had left the day before. I just grinned and settled comfortably into a lift-off recliner. The shuttles were getting slicker and faster every year, and the Janus blast-off rockets were keeping pace.

The shuttle had no cabin atten-

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dants. We were like a car pool of workers, not tourists. In space, the recliners folded back against the bulkheads, to give a roomy forward cabin. The aft cabin had tiered bunks, which probably would disappear when the new engines cut the moon trip shorter than the present two days.

I liked the automatic food dispensers, where I had a choice, instead of having a tray plunked in front of me. Right from the start, Company policy had been to counter space boredom with a maximum amount of personal freedom. When deck gravity was switched on, we could move around, play poker, watch video tapes, snooze—and generally arrive unstressed and feeling pretty good about life.

In the early days of the moon colony, the shuttles had stayed in orbit upon arrival, and we had jet-dollied to the surface. But now the shuttle sank smoothly onto a landing strip and taxied up to a flexible airlock tunnel. Moon terminal was like any airport on Earth—except for the gravity.

It always struck me funny. Same airport carpets—same chair groupings—same ticket desks—and the customers bouncing and weaving along in slow motion.

The Trailer Wheels had their own shuttle companies, with representatives at Moon Terminal. My flight bag had been checked through to UNC, so I wallowed over to the UNC desk and asked the young lady when their inter-Wheel "bump-car" saucer would lift off.

I had been lucky with connections, for once—which was the Good News. The Bad News was that I would not have time to visit Moon Residence, even though a tunnel went directly from the terminal to our canisters. I planned to eat in our Residence canteen before boarding the UNC saucer.

Although cost-conscious in other ways, the Company had never stinted on food. The canteen was a recognized Perq for moon workers. I could not remember whether the day's special was beef burgundy or lasagna, but either would have suited me fine, plus a fat piece of apple pie.

In anticipation, I had taken just a cup of coffee at breakfast—I never eat much breakfast, anyway. And now I had to put my digestive juices in a holding pattern until further notice.

The girl at the desk was doing whatever ticket clerks do to tickets. She handed me my boarding pass and slapped an outsized seating diagram in front of me. "I will now explain our seating rotation schedule."

I took a hasty glance at the familiar round pattern. "That's okay—I'm used to traveling the inter-Wheel bump-cars—I've no seating preference—"

"I'm not asking for your preference," she said impatiently. "I'm explaining how, on subsequent trips with us, your seat will shift from core to rim in a computerized progression."

I usually do not need a computer to shift my seat. I asked, "How come?"

"So that, over the long term, no passenger will be placed better than

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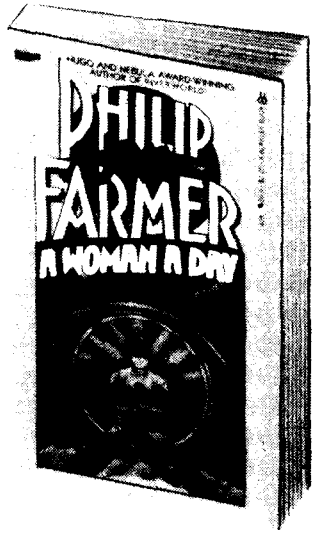

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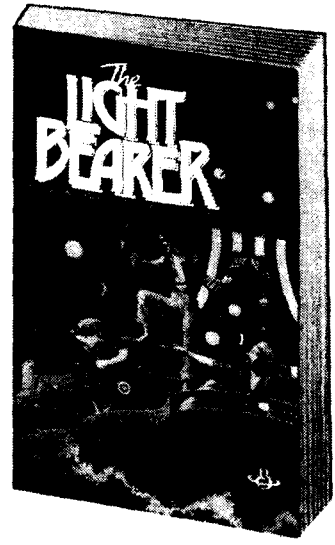

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the others. Note that the center of the saucer is a service area, directly below the astronavigation bubble. This is considered the rear of the seating sections, which continue to the viewpanels at the rim—"

I could have picked up the boarding pass and walked away, but I was curious. Who would waste time hassling over a rim seat? Why was the issue worth computer costs? A guy making a yearly trip to UNC would not even remember which seat he had been assigned on the previous—

A voice interrupted my thoughts. "Hello, Captain Schuster. Remember me? Hansen—Singapore?"

I looked around. The guy was about my age—but skinny, with gray hair, blue eyes, a long chin, and a chapped reddish face. Hansen—Singapore? The years rolled away.

During one of my lengthier feuds with Mickleberry, I had taken a job with a Singapore shipping consortium, who were owners and charterers. They had chartered several Norwegian ships, and Hansen used to come to the office for arrival-departure data. At that time he was the Singapore representative for the Norwegian Seamen's Welfare Department.

Now, apparently, he was Director Hansen of the UNC Wheel. As we shook hands, he said, "I've been on a trade mission to your Residence—and when I heard you were arriving, I waited to take this saucer. Where are you seated?"

He took my boarding pass and handed it back to the girl. "Put the captain next to me, would you, please."

While she hurriedly tapped computer keys, he added, "I always take a rim seat, so I can stretch my legs."

In all these Utopian schemes, some people are more democratized than others.

Years of experience have given me a sixth sense that recognizes when an operation is on the skids. I stepped through the airlock and into the saucer. The atmosphere hit me in the face. The film of shabbiness. Dull metal, worn upholstery. An empty feeling.

There was only a handful of passengers. I guessed that the tour companies had switched to the national carriers. The other Wheels were in a prestige contest over who could provide the most luxurious trip along Trailer Avenue. UNC saucers apparently carried only their own people.

However, they had not cut back on personnel. Three female flight attendants and a male steward were chatting near the central service area. They couldn't care less that passengers were boarding. An attendant spotted Hansen, and hurried down the aisle.

When she came within hailing distance, I saw she was about thirty years older than her paint job would indicate. I myself am near enough to retirement age to sympathize with ambitious oldsters, but certain jobs need quick reactions, youthful flexibility.

And the woman was obviously not mentally youthful. One of the nervous gushers, with a strident voice. Hansen was going overboard to be friendly.

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He could have done her more of a favor by easing her into a less visible job she could really handle.

I sidled off, around the rim aisle. The other passengers were glancing at the empty seats and drifting toward the rim, where they would have an uninterrupted view of the panels.

Hansen's conversation with Theda Bara was broken up by the arrival of the command crew—three blue-uniformed, gold-braided guys proceeding under their own power, and one officer in a motorized wheelchair.

I glanced at the service area, wondering how a disabled person could climb the spiral stairs to the command bubble topside. I saw that a luggage locker had been removed so that a small lift could be installed.

The aisle sloped upwards slightly from the rim to the core. The officer gunned his wheelchair up the aisle, drove onto the lift platform, and was hoisted topside. The three other astronauts filed up the stairs.

The entire saucer was beginning to bother me. I could see how the three-billion debt had been incurred—and why nobody dared to call a halt.

Hansen came over to me, and we sat down. I said nothing. I could see my silence irked him. He said, "You haven't changed much from the old days, Schuster."

"No," I agreed. "I'm still trying to build things up—and you're still running them into the ground. We've both been given more scope in space, that's all."

The view-panels around the rim lit up with the Moonport scene, replayed from the bridge. The tape began recounting the emergency routine and voyage data. We lifted away easily from moon gravity.

Hansen had been fidgeting, waiting to hand me an argument. He said, "We're the only Wheel to give equal opportunity to the older worker and to the disabled. You can check the record. We don't discriminate."

"Yeah, that's your trouble."

"What do you mean by that?"

"Look, Hansen, we've been through this before."

"Yes. You've always scuttled the disadvantaged."

"That's simply not true."

"You'd never hire a disabled astronaut."

"We might *hire* him—we would not *exploit* him where emergency procedures would require an able-bodied man."

"Statistically, these bump-cars are the safest transportation—"

"And the UNC has no passengers to be endangered by lowered safety standards."

"We never intended to compete for tourist business. We're not a commercial wheel. We're a nonprofit, total welfare oriented—"

"Okay, okay—I know the welfare spiel backwards. It's the fuel for your gravy train—but now the Company has blown up the track."

"They can't. Too many people will be hurt. Maybe you have dollars on your side—but we have *people*. Like the disabled astronaut whose job is

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tailored to fit him—and the seniors in the jobs of their choice. What's three-billion lousy bucks? Just a line of zeros in a newspaper. But people are *real.*"

He paused to let the truth of this sink in. Then he added, "You're the Company's hatchet man, Schuster—but you won't cut *us* down to size."

"I'd guess, Hansen, you've been cutting yourself down."

"Oh? In what way?"

"You just told me. You can't discriminate."

He looked uneasy. He was not stupid, and he was remembering hatchet-man Schuster from the old days in Singapore.

When a guy is a welfare bureaucrat like Hansen—a professional bleeding heart—he has to champion *everyone.* Not only those with legitimate claims, but also every whining scrounger who comes down the pike. If he draws the line anywhere—anywhere—the excluded group raises a media ruckus, and he's fired.

Thus, I was sure Hansen's present services to the disabled—if placing a disabled astronaut in active space duty is a service to him—had used only a small portion of the three-billion deficit. The rest had gone to the same sort of scroungers he had championed in Singapore, when an exasperated Norwegian skipper had tried to throw them off the ships—the goldbrickers, the alcoholics, the hypochondriacs, the unteachables.

Of course, Hansen had built up an impressive front. He had friends who would go to bat for him. I could just see the arteriosclerotic flight attendant gushing away on all networks about Hansen's services to the Geritol set.

At the moment I could not figure out how to outflank him. I was stymied and hungry. I knew the UNC boondoggle was a swindle that would hurt a lot of innocent people, but I could stop it only by reversing public opinion. I had to find a good reason to gun down Santa Claus.

A younger flight attendant came along the aisle and flipped up the arm trays. I brightened at the prospect of taking on bunkers. The male steward followed with the tray wagon.

His hands shook as he lowered my serving. I glanced quickly at his face. His eyes were red-veined and bleary. His nose was the porous red clump of a souse. His skin had a clammy film, and his jaw had shaving nicks. He was so hung over that a sudden noise would have lifted off the top of his head.

He could be the weak point I needed. I began to apply pressure. "Didn't have time to sleep it off, hey?"

He half-smiled and looked quickly at Hansen, who said to him, "You're keeping to your medication, Carl?"

"Yes sir, Mr. Hansen," said Carl, with a jerk of his head, as if he had started to bow and couldn't.

Hansen smiled and waved him away.

I commented, "Where's he getting the booze, Hansen? Alcohol is off-limits in space. But then, you never did believe drunks oughtta be fired."

"Alcoholism is an environment-caused sickness. Alcoholics should be

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helped, not fired," said Hansen.

He spoke as if his mind were elsewhere. He had not liked my question, *where's he getting the booze?* He knew damned well his pampered alcoholics had moonshine stills, against all safety regulations.

He moved his plastic food box to the empty seat next to him, flipped back his seat tray and walked to the core area.

I craned my neck and saw him climbing the spiral stairs to the command bubble. He would now send a message ahead to his Wheel buddies, telling them to ditch the evidence. That was okay with me. Chiselers on the run make a lot of mistakes.

With increased appetite I turned my attention to the tray. It held shredded greenery and chopped what's-it with a weed sprig on the top. A printed card informed me that it was a low-cholesterol, low-sodium, reconstituted-protein health food recommended by the Dietary Council.

Well, I ate it. Mickleberry had never promised me a rose garden. The girl finally came with coffee. As she poured me a cup, I asked, "Got any peanuts or potato chips in the galley?"

"Oh, no, sir!" she said. "The Dietary Council has banned all junk food in space."

I felt hungrier than ever. An egghead's junk food is a working man's calories. I would have to outmaneuver Hansen fast, before I starved to death on birdseed.

We watched our Wheel-approach on the view-panels. I am not usually a backseat driver, but it seemed to me the retro-blast was longer than in standard procedure, and there was more compensation with the docking jets. Certainly we bumped hard as we slotted into the Wheel. I was jolted abruptly forward in my seat.

I wondered if there had been some instrument error. Thrust was needed to maintain the wheels in their assigned positions, and automatic pilots ain't infallible. Distance is deceptive in space, and a last-minute visual correction would have been difficult.

When the wheel projects were getting under way, there had been protests against the unsound economic costs of the Thrust systems. But traffic is a problem anywhere. Neither on Earth or in space can structures be plunked onto the cheapest sites. On Earth, it's the roads that cost the dough. In space the roads are free—but it costs money to place the structures where they have mutual access without creating three-dimensional traffic jams.

Whatever the berthing snafu, we had arrived in good order. We straggled through the airlock and into the entry port. The bulkheads were the dreary off-white of public institutions. The other Wheels had gone to considerable expense to decorate these terminals—the Japanese miniature gardens were really something to see!—but UNC had not bothered. Or maybe they just had not been able to get their act together. And on the basis of what I'd seen, this was likely.

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Hansen, who had seemed more cheerful after coming down from the command bubble, saw me giving the bare walls the once-over. He explained, "We're reviewing designs. It's hard to get a two-thirds vote in both the Building Committee and the Wheel Council—so many national and racial groups, you know."

"No, I don't know," I growled. "The whole Space Mining operation is a melting pot, but it don't take all year to decide where to hang a calendar."

"That's because only the executives make the decisions."

I knew it was no use telling Hansen that executives are hired specifically to make decisions. We had gone round on that argument, too, in Singapore.

We stepped from the terminal into the perimeter avenue. A uniformed attendant gave us a multi-button box to which a head-loop was wired.

"What's this for?" I demanded.

"For direct communication with the translating room. We have twenty languages on the Wheel."

"Couldn't get a two-thirds vote on a language, either, hey?"

"Being allowed to speak one's native language is a basic human right. There's no reason I should be forced to speak to you in American."

"There's two-million bucks worth of reason, Hansen. Unless you wanta start begging in Japanese."

He did not like the crack, but I was hungry and did not care.

I was also feeling the perimeter gravity. Instead of jet-lag, space has gravity-lag. Somewhat like the way transatlantic ship passengers used to complain about finding their "land legs" after a week at sea. A problem of the balance organs, probably. During the past few days I had been adjusting to several different gravities—moon-to-shuttle-to-Earth-to-shuttle-to-moon-to-saucer-to-Wheel—and my overworked balance organs were saying, "Hey, knock it off, will ya?"

There was no luggage dispersal system. Apparently I would have to carry my flight bag to whatever accomodation Hansen assigned me. I dumped the translating unit in the bag and followed Hansen into the avenue.

Wheel perimeters were the residence, shopping, and office areas. A lot could be done architecturally to make them attractive. I liked the French Wheel's boulevard look, with sidewalk cafés, and window boxes.

Needless to say, UNC architecture was a dull blandness guaranteed not to offend any cultural group.

However, the costumes of the residents more than made up for the blandness. Saris, tribal robes, peasant pantaloons—you name it, they had it.

"Holy cow! Why didn't you tell me?" I asked Hansen. "I'd have worn knee britches and a cocked hat."

"Or your gray flannel suit? Being allowed to wear one's native costume is—"

"A basic human right. You get a lot of mileage out of one tune."

We had started to walk along the avenue. I could sense I was walking against the rotation of the Wheel. Something was wrong. I had never felt

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space-sick before. Maybe it was just my empty stomach. I looked around for transport.

Hansen said, "We put our robot trams on the next deck hubwards, with adit lifts every half-kilometer. The perimeter avenue is reserved for pedestrians."

"Why the expense of an extra deck? And the man-hours lost in all the running around?"

"Walking is more healthful than riding. Human health can't be measured in dollars."

When Welfare pros like Hansen are *borrowing* money, they can measure every damned thing in dollars. But when it's time to pay the money back, they slide off into a continuum where only 'human' values count.

Hansen's office was on the top floor of a three-story building. The large room was panelled and furnished in Earth woods—another world from our Moon Residence of cannibalized cargo canisters.

I dropped my bag beside a filing cabinet, and we sat down in a couple of wide leather chairs that formed a right angle at the end of a long coffee table.

The upward spurt of the elevator had made me dizzy. I brushed my sleeve across the sweat on my forehead. I could see Hansen had noted that I was not in form. He looked pleased.

I thought back to the old days, and said, "I remember, in Singapore, how you used to give the skippers a hard time. You browbeat them into keeping troublemakers aboard, and laughed when they dropped from exhaustion."

The old hate boiled redly into Hansen's chapped face. "Who did they think they were? Just because they had four gold stripes—"

"What stopped you from winning the stripes for yourself?"

"Nothing should be a matter of winning or losing. All men are created equal—and should be kept equal. Inequality makes losers. I saw you zeroing in on Carl! Guys like you are responsible for his psychic scars. Because he can't compete, you say 'tough luck' and step on his face.

"That's why this wheel is dedicated to equality," he went on. "Every job has as many women as men. Racial/national groups are hired by quota. Trainees make the same money as experts. We have no losers, no poverty—"

"No potato chips."

"Go ahead and sneer."

"I'm not sneering," I said reasonably. "I'm just stating a fact. I was sent here to investigate a non-productive welfare boondoggle that's cost the rest of the world three billion so far. I find it has booze but no potato chips. Something ain't going according to the blueprints."

I should not have thought about food. I felt space-sick again.

Hansen stood. "Would you like to take a look at what you're criticizing?"

"Of course." I managed to get to my feet. "That's why I'm here."

I thought Hansen would head for the elevator, but he opened a door that led to a gallery overlooking a large chamber filled with desks. Some

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of the desks were occupied by persons with headsets. Most of the colorfully dressed crowd seemed to be reading or talking to one another.

"Congress?" I asked.

"The translation center," he explained flatly.

"Why so few people working?"

"Well, naturally, the translators are on stand-by until the computer signals that their particular combinations of language are needed."

"Cumbersome in an emergency, ain't it? Suppose a meteor wiped out this chamber—and survival depended on a Finn and a Malay working together."

"Don't be ridiculous."

"That's no answer. With your shipping background, Hansen, you know the *one* reason a skipper can send a seaman back to the hiring hall is that he speaks neither the language of the ship *nor English,* which is the language of international communication in business and technology."

Hansen said something—but I was not paying attention. I realized my dizziness was being caused not by hunger but by the wheel.

Maybe it was because the gallery reminded me of a ship's bridge, and I was used to navigating by the soles of my feet. Maybe my subconscious mind could not forget there had been a hitch in the docking. Maybe my jittery balance organs were now hypersensitive to timing.

Whatever the reason I sensed that the wheel had slipped its leash and was out of control. The gravity pull seemed to be the same, so the error was not in the rotating speed but in its positioning in space. What would cause a shift? Once a wheel was positioned, nothing could act upon it. Except Stabilizer error!

I cut into Hansen's words. "How do I talk to your control unit?"

"Well, I guess the easiest way is to go below—there's a staircase further on—and find a translating hookup through the computer."

It was like being on a ship with the engine Full Ahead and the steering mechanism inoperative. I beat it to the staircase and started below.

The steps were not where my eyes said they ought to be. I stumbled—and took the rest of the flight in two leaps. My momentum propelled me down the aisle to the computer. Costumed figures dodged aside.

I tripped on a tribal robe trailing in the aisle—and pitched forward. I twisted to take the impact on my shoulder—and whammed the console. It gave a jolt as I slumped to the deck. A beeper began registering TILT. The translating circuits were scrambled.

I just lay there and took an equal strain on all parts. I could not move anyhow, since my feet were tangled in the brocade burnoose.

An indefinite distance above my head was a lot of excited talking—in English. The whole Folk Fair had grown up with an English-speaking cultural heritage. Elvis, the Beatles—Upstairs, Downstairs and Gunsmoke—Alistair Cooke and *Star Wars.*

They could insist on speaking their

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own languages, but when they got back to their pads they changed into jeans and listened to Nashville on their stereo headsets.

My head achieved a stable orbit. I unwound myself and got up. Somebody had brought Hansen a bright red mike which I assumed was Emergency equipment. I walked over to him.

"Hub control doesn't answer," he told me. "The whole switchboard seems to be out."

"How do we get to the Hub?"

"Well, the nearest adit is four blocks—"

"Dammitall, you must have vehicles that can use this Job Strip! Call an ambulance! We've gotta reach the Hub *now!* It may be our last stop before Betelgeuse!"

At that moment I heard a siren. Somebody at Emergency Services had been awake, and had dispatched a vehicle as soon as the translators' circuits had gone dead.

The Spokeways of the UNC were double the width of those of the other wheels. As Hansen and I projectiled along the high cable, from gravity into weightlessness, I looked down and reflected that the Spokes contained really broad acres.

Only a fraction of the land was being worked, since normal prices were far under the wheels's inflated costs. The ensiled grain would have to be dumped or burned.

Except such of it as was being distilled.

Our projectile needled us into the station at the Hub. We climbed out—floated out, would be more exact, here at null-gravity—hand-gripped our way to a side wall and descended.

We emerged into a rotunda-like chamber. Galley tiers rimmed the central core containing the fusion furnace. Weird catcalls and riotous echoes were reverberating in the vast hollow.

We descended past the archive tier and arrived at Hub communications. This gravity-deck tier held the multi-bank switchboard linking the Wheel

Upon a **slight conjecture**
I have ventured on a dangerous journey,
and I already behold the foothills of new lands.
Those who have the courage to
continue the search will set foot upon them.

Immanuel Kant

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areas, and linking the Wheel itself to the rest of the cosmos.

The hardware was impressive. The human element—quota-chosen—was swaying and singing in a dribble of spilled bottles.

The Wheel had been put in desperate peril, but I could not suppress a grim smile. "Yeah, Hansen, you warned 'em—but you can't separate an alcoholic from his booze."

He stopped his floating descent by grabbing a ladder grip. "I knew you meant to set us up! It's your technique! 'Prod 'em and give 'em enough rope!' Remember how you got rid of that sick engineer in Singapore?"

"Which one? The consortium had several 'sick' engineers."

"You went aboard as skipper, and pretended not to see the liquor—ignored the missed watches, the damaged gear. But then, when the ship was berthing at the oil pier in Borneo, you spread the word that the ship across the berth was a wine tanker taking on bunkers.

"The guy—the sick man—hopped ashore before port officials had cleared the ship, and he never knew what hit him. Before he had gone ten steps, he was arrested and hauled aboard. You used a minor infraction of international law to throw the book at him. Thirty years at sea—and you threw him in the gutter."

"Wrong, Hansen. He had been thirty years in the gutter. I just threw him off the ship."

"You tricked him! You enticed him ashore with a lie! If it hadn't been for you, he could have kept a decent job—"

"Oversleeping watches, damaging gear, endangering the ship. Can't you get it through your head, Hansen, that alcoholics endanger lives? At the wheels of cars. On ships. In planes. And especially in space."

"Well, if there's been damage to the Wheel, it's *all* your fault! Before you got here, we were dealing humanely with all problems—"

"Except the three-billion deficit."

"Stop harping on the damned three billion! It means nothing!"

"It means what money has always meant. A measure of performance. A symptom of mismanagement. Ask the drunks what they've done to the control system."

Hansen pulled himself onto the tier. I continued descending the chamber, spiralling around the core.

I saw that a sealed panel had been breached in the smooth steel. I dived to the panel and looked beyond it. I saw a vat, and a floating tangle of copper wiring.

Hansen had told the alcoholics to ditch their stills. Instead, they had moved the operation to the Stabilizer Room, which normally was a sealed area. It was somewhat like the locker housing the gyrocompass on a ship, and it contained the hardware that determined the wheel's position and rotation, automatically compensating for deviations.

The removal committee had not done much before settling down to

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sample the product. But they had hooked the vat coil to a power cable and lashed the vat down, on top of a console.

I could not believe my eyes. Any wheel worker should have known that internal systems are not fortified like nose cones. I cut off the red-hot coil and looked at the console. It was the Thrust Compensator—and was now inoperative. The heat had activated the Safety Cut-off. But how much harm had the distortion done?

I swung to the Navigation screen and looked at the celestial coordinates. We were skimming like a Frisbee toward the moon—and the French, German, and Japanese Wheels were directly in our path.

Nobody had visualized that a wheel would go berserk. Had the other wheels noticed our disfunction?

I replayed the co-ordinate tapes. Yes, all three had begun a concerted maneuver to thrust out of our plane without barging into each other. But had they begun in time? How long had they been trying to alert our drunks?

I dived from the core to a rim gallery and boosted myself upwards to light a fire under Hansen.

He had cleared away the drunks and was trying to handle the backlog of incoming calls from the tracking stations. When he saw me he asked, "Find anything?"

"Yeah. Your poor sick alcoholics cooked the guts of the Thrust unit. The Wheel had begun to shift even before we docked. If your technicians don't reverse the thrust pretty damn quick, we'll be a crater on the moon—and maybe take three innocent bystanders with us."

He hesitated. "Is the repair a complicated job?"

I stared at him. "All space engineering is complicated."

"What I mean is, our technicians have been licensed under dispensation from usual university credits. They come from disadvantaged culture groups who need help to join the mainstream—"

"Couldn't you juggle your positive action quotas to include *one* fully qualified technician?"

"But we're dedicated to providing opportunities for the disadvantaged. Establishment-qualified people can find jobs anywhere. The culturally disadvantaged can still do technical work."

"Which ones?"

"What do you mean?"

"You've got a bunch of guys who've been given special diplomas. Which ones can repair a Thrust unit?"

He thought for a moment. "I'd have to ask. I wouldn't know—"

"Would you even know which of 'em can read and write? Get me the German Wheel."

"Why?"

"Because they have the same Thrust system—and a guy named Plattner, who used to work at Space Mining. Once I describe the problem, he can direct me step-by-step."

"He won't be able to see—"

"He won't hafta *see*. He has a trained mind. All he needs is a man who can understand and follow in-

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structions," I said clutching my fists.

"When you say 'trained mind' you're casting aspersions on people who merely lack orientation—"

"Look, Hansen, are you gonna let me talk to Plattner—or am I gonna haul off and knock you into the middle of next week?"

He stepped back from the switchboard.

The heat from the moonshine coil had also destroyed the circuitry to the back-up system. We had to by-pass and jerry-rig. Now and then I took a quick gander at the coordinate screen. Our mass was now ever-accelerating—the other wheels were still in the slow initial-thrust phase. We were certain to take the nearest wheel—the French—with us. I thought of the elegant, lively, flower-bordered French boulevard, and I could have wrung Hansen's neck.

But then, many a harrassed skipper had wanted to wring his neck, in Singapore.

When I could program for Reverse Thrust, I was so tense that my finger shook as it jabbed the button. I forgot to breathe as I watched the progressions on the tape. But we were slowing—we were slowing.

Cold with sweat, I took a deep breath. I really had thought we were goners. Plattner and I congratulated each other, and I went into a huddle with the tracking stations to put us back where we belonged. This part went more easily. I was a licensed astronavigator—without dispensations.

I stayed at the co-ordinate screen until we were repositioned. I did not realize how many hours had elapsed, until I rubbed my face and felt the stubble. I would have liked to reseal the room, but the ruined hardware would have to be replaced. In the meantime, I hoped Hansen's outfit could keep their hands off.

A shower, shave, and change of clothes made me feel alive again. I was still hungry, and a soy bean casserole did not fill the bill. Soy beans are okay, but they need a side order of sweet-and-sour shrimp and fried rice.

I took the elevator to Hansen's office. He was at his desk, to his elbows in paperwork. He looked at me and said, "A Space Mining cargo van is being diverted from the French Wheel to pick you up. I hope you're satisfied with the hell you raised out here, Schuster."

"The hell began with your own lousy envy, Hansen. You were born hating the guts of anybody who had more than yourself. Your idea of equality is pulling everybody down to your own level."

"You have no sympathy for losers."

"I've never known a man who was a loser, if he made up his mind he wanted to be a winner. Part of my Company job is to make opportunities for men with talent and ambition—to give them a boost up the ladder, not to make it easy for them to lie in the gutter.

"You're not doing any man a favor when you pay him for a job he can't

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do, or give him diplomas for knowledge he can't grasp. He soon comes up against a problem he can't handle —and then he's a loser.

"Space work is too demanding to accept deliberately planned human error. When—for any reason—you put incompetents in space, you're planning for disaster. The other colonies won't tolerate it. The UNC boondoggle is finished, Hansen."

"But the mass unemployment! Throwing people on the scrap heap!"

"You've made scrap of human beings by kidding them that everybody on the team can be the quarterback. You boast that you tailor jobs to people. But every viable organization has a productive purpose, for which people have to tailor themselves to be competent in what the job requires.

"Sure, when the UNC wheel is reorganized, there will be severe dislocation and temporary hardship. *You* created the hardship by making people believe Training doesn't matter—and educational disciplines are dirty words—and drunkenness is excusable —and language requirements are a violation of human rights. You make people believe dead roots are more important to their lives than a living future.

"Most of all, you've made people believe unlimited handouts solve all problems. There ain't no Santa Claus, Hansen, but guts and hard work will take a guy a long way—even in a wheelchair."

I had been holding my flight bag, so I shifted it to my other hand and went on, "Those seamen who went through Singapore—was any one of them better because you defended their right to be drunks and losers? Did any one of them rise to a better quality life afterwards? Give me *one* name, Hansen."

He looked startled, as if the idea had never occurred to him. I could see him thinking back, remembering ships. I walked out.

As I legged it along the Jog Strip I saw that people were talking directly to each other. The translator units were still haywire, and I was glad. Strength is in union, not in fragmentation. I was also glad the current space language was English, since I'm kinda thickheaded about languages. Maybe before I die we all will be speaking Chinese—but I'll cross that bridge when I come to it.

I piled aboard the Space Mining van, and the astronaut grinned, "Mickleberry's on the blower, craving speech with you soonest."

"He can relax. The other Wheels will back him for complete UNC reorganization."

"Figures. The outfit ain't been born that can swindle two-million bucks from you and Mickleberry."

I must have been looking absentminded, because he added, "What's wrong?"

"Nothing. I was just wondering what canteen special I'll hit."

"Leftover lasagna or home-style chicken and dumplings."

"I'll take both," I said, feeling good again, "and a fat piece of hot apple pie!" ■

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SYNOPSIS

Seven aliens have been marooned in the American Southwest since their shipwreck during an Earth-colonizing attempt in 1124 A.D. These 'users,' small parasitic protein masses, found that local Anasazi children were optimum hosts though the bodies must be discarded as mindless husks before maturity. Each user expends a child every few years without compunction.

The users are all male and, though they live for millennia, would soon have gone mad without the calming female emanations of the serenity beam, which emits from beneath ten meters of earth in the shreds of their shuttle craft. They cannot recover the beam generator, so are forced to live within a circular range reaching from north of Gallup, New Mexico nearly to Durango, Colorado—a vast, colorful high desert area.

Bereft of the shuttle and its tools, users first learned to live within the Anasazi, pre-Columbians of the Four Corners region, then built a small settlement near Chaco Canyon. Foiled after a long effort to assemble hardware for a subspace rescue beacon, the users were finally routed by the vengeful Anasazi in 1257 A.D. Users have no concept of affection or ethics toward their unwilling hosts. They accepted the necessity of usurping children in a large pueblo which later grows into San Saba Pueblo. After Coronado, the users realized that humans might eventually provide tools which could be adapted to the multi-element rescue beacon.

By 1994 A.D., solid-state technology and careful site choice have brought the users within months of setting up their beacon in the massive arroyo of Escavada Wash, not far from San Saba.

In June, 1994, Raimondo Koshare, a native American archaeologist, is quietly excavating a ruin he has named Oshara not far from his home pueblo, San Saba. By handling an object, Rai—like some clairvoyants—can feel the emotional imprint left by an object's owner, even though centuries may have passed. Rai is reluctant to publicize Oshara because it seems to have been used only by genius children before it burned down around 1260 A.D. Suspecting a hoax, Rai asks his old friend Valerie Clarke for help in understanding the ruin, which is similar to those of the long-dead Anasazi civilization.

Val brings her close friend and sometime lover, Laura Dunning, with her. Laura, born without eyes, can 'see' telepathically through the eyes of others near and, across a short distance, can receive thought impressions with varying accuracy. Laura perceives that Val has long harbored affection for Rai—and that Rai is soon infatuated with Laura herself, more for similarity of their extrasensory gifts than for her strange physical beauty.

Laura senses ancient evil in two San Saba boys, Chuzo Dinay and Ziu Tiumunyi—a feeling Rai knows only from contact with Oshara artifacts. Still, Laura is alone in her fears of the boys. None of the three suspect that the

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children's bodies harbor true aliens.

After a night at Rai's San Saba adobe home, the trio spends their next night in his trailor house at Oshara, the burnt-out site of centuries-old user experiments. Val stays at Oshara the next day while Rai and Laura drive back to San Saba. Rai has agreed to collect stool and urine specimens for Jeff Simes, a state health official. Since San Sabans refuse on religious grounds, Rai must be stealthy.

Rai surprises three of the seven users—Carson Kimbeto, Encino Mangas, and Hatchi Leon—in Escavada Wash but dismisses their rescue beacon preparations as boyish tinkering and proceeds to San Saba. By radio the users confer with their leader, Chuzo Dinay, then backtrack Rai's treadmarks.

Rai collects stool samples in the San Saba trash midden where children play, and gets a urine specimen from Dinay without Dinay's knowledge. After forwarding the specimens, Rai and Laura make love before returning guiltily to Val Clarke in Oshara.

The users are enraged to find that Rai is excavating their own ancient ruin. Again they confer with Dinay, whose hideout is in the midden, and with the three other users—Mateo Betan, Ziu Tiamunyi, and Naka Flores. Verdict: destroy Oshara and the three humans.

Despite sniping as he drives to Oshara, Rai does not realize that Oshara is to be ambushed. He learns by radiophone that Dinay's urine specimen contained chondroprotein, a material not found in human urine—but the humans do not understand the implication. The users monitor the call and fear they have been pinpointed. Dinay insists on the most drastic measures: a tragedy which will divert suspicion from San Saba.

As the users approached Oshara under cover of darkness, Rai Koshare lazed in his house trailer, fielding the questions Val Clarke had raised during her lone day at Oshara. From his sketches of the ruin, Rai admitted, his enigmatic Oshara did have some characteristics of a prison compound. Laura Dunning kibitzed as they dallied with conjectures that probed pieces of the truth.

The room with the anomalous fire channel and chimney was dubbed the furnace room. Its tunnel outlets were too conspicuous to be the work of prisoners. The small rooms across Oshara's atrium, however, could have been cells for children. They wrangled over the identity of the jailers, never guessing that ancient users in adolescent human bodies had manned the roof for night guard over the children whose bodies they would later expend.

"I'm inclined to toss that whole idea," Rai said at last. "The Anasazi may have kept a few slaves, but why so far from any major settlement? Slaves were a work force for rich tribes. I see nothing that a group of child slaves could have provided, out here in Oshara."

"Hostages?" Laura's eyeless face swept the others as though sighted.

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"If the kids were ransomed, this might be an ideal place to hide them."

Again, Rai agreed, it was possible. Still they lacked any evidence that adults had lived in Oshara to enforce a century-long kidnap scheme. Rai made fresh coffee, argued aloud with himself, carefully avoided touching Laura lest he reveal their alliance to Val—which, of course, was a clear signal to Val. She saw him lean against a partition away from Laura, studied the flicker of his eyes as he looked past her platinum mane, and knew. She *knew,* no matter that Laura had known Rai so briefly; no matter that Laura's plangent sexuality had reverberated against Val herself.

Instantly, Val's coffee tasted of ashes, the itch of her faint sunburn was an agony. "Getting late," she lied, wishing only to sink feet-first into the desert. "I'll—I'll just take a walk around before bed." She stood up too quickly, snatched a sweater too abruptly, pulled the door open—and stared in frozen shock at the figure that knelt below the steps, half-discovered by light streaming through the doorway.

She saw Carson Kimbeto, an apparent eleven-year-old, silently emptying the pickup's five-gallon fuel can onto the parched earth around the steps. Kimbeto reacted first, dropped the container as he sprang backward into the dark. Made stupid by self-pity, Val needed a vital second too long in emerging from her shell. Kimbeto knew where he had laid the rifle; Val could not know he had one.

Whirling, Val slammed the door, her back against it, her eyes grown even larger in fright. "An Indian boy," she stammered, "just be, be, below the steps! Pouring fuel," she finished in a whisper.

Rai reached the door in two paces, wrenched it open, stared at nothing. He turned toward the women. "I smell ga—," he began, and his head snapped around from the impact of the slug. Another harsh *crack!* and flash from the darkness, and a coffee cup exploded before Rai's body crashed into the aisle. The door swung shut.

"What—they're here," was Laura's cry.

"Do as I'm doing," Val hissed, aware that their assailant could hear but not see them as she dropped to her knees. Val locked the door, turned quickly to Rai who slumped with his face against Val's thigh. No sound came from outside. Val turned Rai's head upward, saw the purplish wound made by the slug as it left his cheek.

"Oh my *God,* they shot him in the face," Laura screamed, and then her head lolled sideways against the wall.

"Not so loud," Val insisted, and scrambled to flick off the overhead light. Momentarily blind, she fumbled for the Koshare pulse. Outside she heard youthful voices raised in the puebleño tongue.

"Three of them," Laura babbled into the blackness, lifting hackles on Val's nape. "Old and evil, and Rai is shot! We're going to die," she said as

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if begging for a denial.

"Pity you couldn't sense them ten minutes ago," Val snarled. "But you were all wrapped up in Rai—hold it." Val's fingers found what she did not dare expect. Whispering: "He has a pulse, Laura." A strong one, at that. "Keep quiet, idiot!"

Crawling, crooning endearments, Laura crawled to Rai as a shout came from nearby. "The keys," shouted Kimbeto in English; "we want only the car keys." It had taken the users five minutes to see that hot-wiring the ignition might take too long, but Leon and Mangas were still at it.

"I don't have them," Val wailed, only half-surrogating her terror.

"Take them from the body," Kimbeto replied smoothly, reasonably, and after a moment added, "then we will leave."

"They're going to burn us," Laura whispered shakily, "or shoot us if we try to run."

Val agreed with Kimbeto, playing for time, then heard Rai's gruff mumble. She knelt, placed her fingers over his lips, roughly shoved Laura's head aside to whisper into Rai's ear. He fell silent, then sat up and fumbled in his jacket. "No, I'm damned if I will," he whispered, the words impeded by the hole through his cheek. "Give me time to try something."

Val, her eyes adjusting to starlight, peeked from a window to see Kimbeto standing, the rifle ready for a snap shot. The pickup's cab light was on, revealing two small forms that peered and poked at the dashboard wiring.

"Stall," Rai urged again, and Val began an altogether convincing display of frustration and terror while Rai struggled upright. She called out that Rai's body was too heavy, that she could not bear to touch him, that she could not find the right picket. And all the while Rai Koshare worked in furious quiet to remove a roof panel.

Another shout from the pickup, another reply from Kimbeto. Val listened, willing them to go on trading puebleño dialogue forever.

The roof panel swung down and a rectangle of stars was marred as Rai raised himself up, standing on a shelf. Val kept silent, knowing that the solar panels would hide his emergence atop the mobile home. Val heard a metallic scrape from above, burst into another caterwaul. Which key is it, she blubbered; don't hurt me, she wailed; I'm afraid, she said with no exaggeration.

Laura's far-ranging senses found employment as she eased her way to Val's ear. "They're afraid to rush us; we're bigger than they are," she whispered.

Another creak from above, another ululation from Val to mask it, another whisper from Laura: "Rai's trying to loosen something big. It's heavy." Laura had not grasped the salient detail of the hundred-gallon water tank which allowed gravity flow to the kitchen. She only knew he thought it possible to tip a massive object over the roof.

Then from the darkness: "Throw out the keys, or I start to shoot. Be

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nice and we let you alone," Kimbeto finished sweetly.

"Shit, you will," Val muttered.

Rai grunted, ducked down, whispered: "Take the key ring from my pocket. Toss it two meters behind the door, a meter from the wall."

He poked his head through the opening again as Val felt for his keyring. Then she had it, jingled it loudly, silently opened the door a few centimeters. With a prayerful guess, she flicked the keys toward the rear of the dwelling, slammed the door. "Now go away," she stormed, meaning it.

Carson Kimbeto saw the dim flicker of keys, lost his chance for a shot as he heard the faint clatter of metal against the ground. He moved cautiously closer, shouted in San Saban, lit a match and was dazzled by its flare. But he saw the keys and stooped to retrieve them, unaware that he was visible to Rai from a slit between the solar panels.

Val heard the grunt from Rai, the cascade of screeching metal as the water tank toppled from the roof carrying the solar panel Rai had loosened. Kimbeto jerked nearly upright before a great black shadow bore him to the ground. He screamed once.

The match might have expired but for the tuft of dry weed it struck as it flew from Kimbeto's fingers. Its glow faded as Rai dropped to the floor inside and bowled over the hapless Val. The tiny flame flickered as the two distant users turned toward Kimbeto's scream, and then it swiftly climbed the weed stalk which fell, its brief moment of glory spent in a flash of flame.

The puff of flame fell on the earth dampened not by the water tank which leaked slowly, but by five gallons of gasoline. The fireball created a whuffing blow that consumed fumes for meters around. Rai jerked his hand back from the door as the yellow fireball rose around the end of the structure. Val's ears popped from pressure, popped again. With all windows closed, the sigh of superheated gas slapped at the walls but did not come inside just yet.

The forms of Leon and Mangas sprinted toward the fallen Kimbeto, whose legs and abdomen lay under the solar panel. He was face down, struggling silently, unable to see the heavy tank that had crushed his pelvis.

From inside, the besieged humans saw Mangas race toward his top priority—the rifle, lying just beyond Kimbeto. Rai cursed softly, crawled back into his bedroom in the uncertain flicker of the blaze that continued to feed from gasoline-sodden earth. The women followed.

Mangas seemed too capable, too well-coordinated, for Rai to rush him, especially through a wall of fire. "I can't believe how calm the injured one is," Laura breathed, flicking her attention from mind to mind, grimacing in fear as she probed the user mentality. "He's giving instructions by touch! The keys—"

"I have the car key," Rai muttered in satisfaction as Mangas arose from Kimbeto, who faced pitiless heat some meters away. A quick handclasp with

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Hatchi Leon, a transfer of the rifle, and Mangas was running to the pickup.

"They're going to push the debris off with the pickup," Laura said, almost somnolent.

"Not without hotwiring," Rai said, pleased with himself.

A sharp report: Hatchi Leon was slowly firing into the doorway through the flames. "What about the windows in the south wall," Val asked.

"Sandstorm covers, bolted from the outside. And they seem to know it," Rai growled.

Val grimaced as another shot tore through the door. "We sure can't get out the front."

Another shot and a ricochet, fleeing a bell-like clang. "The propane tank," Rai breathed, then, "Yes, by God, we *can* I think. There's an access crawlway under the toilet floor to a storage place up front. That's where the propane tank is."

"Jesus, what if that blows?"

"It'll take the whole interior with it," was Rai's answer, but he was already crawling into the toilet nook. "You have a better idea?"

"The one you talked to—Kimbeto?—is dead," Laura said dully. "No wait, he isn't dead, he's deaf and blind, but he is moving."

"Hell he is," said Val, risking a glance through the window. "He's still as a corpse."

"Head's bursting," Laura mumbled "Aaaagh, you monster," to something outside. And again with glee. "He knows the car key is not on the ring." As if to endorse her words,

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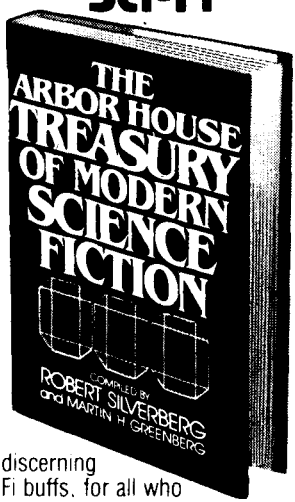

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Mangas came tearing from the pickup, shucking his jacket off as he ran. At the call of Mangas, the small form of Leon sidled near Kimbeto.

Leon, watching the windows now, held the jacket to protect them from the crackling blaze that now fed on polymer in the trailer's shell. Mangas knelt swiftly and drew a knife from his pocket. Val saw him cut Kimbeto's jacket and shirt away, gasped as the next sweep of the knife exposed grayish pink ribs near the backbone. She could not afford the luxury of being sick and scrambled toward Rai at his hoarsely whispered call.

There was now enough light, and some heat, from the kitchenette, streaming down the hallway. "Floor insulation may help, but it may get damned hot. But *keep going,* Val. Me first, to wrestle that big propane tank aside and open the forward storage hatch," he recited quickly. "Then Laura, then you. Okay?"

Rai's was the only sensible sequence, but: "It figures. At least you remembered me," Val growled, flames reflected in her eyes.

He reached out with a gliding caress that stroked her cheek. "Always," he said, and nodded his chin toward Laura who lay against the wall, brow furrowed in loathing, teeth bared in a rage against a presence the others could not detect as she did. "But we two—she needs me," he finished, and all but dived into the crawlspace.

"And I don't?" But Val's reply went unheard.

Val reached Laura in an instant, forgetting to whisper, urging her to hurry. Laura moved blindly despite Val's steadfast gaze and insistent hands. Yet somehow she forced herself to comply, murmuring information and maledictions as she monitored the gory business just outside.

"He's prying at the ribs," Laura mewled, and, "Fry, you goddamned animal," as she wriggled into the crawl space. Then, over the sounds of a heavy object scraping in the storage area, "Ah, God, oh, Jesus God, ohh; something's leaking up from the body! It's crawling; it's him, yes, I know who he is, the slime!" Laura panted in a paroxysm of revulsion. Unable to wrench her concentration from the users, dangerously near insanity, Laura lay unmoving in the crawlspace, blocked by Rai beyond her. Val dashed to the window, feeling the heat strongly now, as the smoke crawled through the hallway just above her head.

She saw butchery tinted by firelight, Mangas scooping into the cavity he had made, a wound gaping in his own arm as he guided a gelatinous glistening mass toward his self-inflicted gash which scarcely bled. The body that had once been a boy lay blistering in the heat and the kneeling Mangas, she knew, must have second-degree burns by now. She could not know he was able to shut off the pain; but knew that whatever his vices, Encino Mangas was taking a deadly risk for something beyond himself.

Now Leon began shooting methodically along the trailer house, saw

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Val's face, took aim as she dropped below the bed pulling the mattress with her. She yelped to feel the slug's impact on the mattress, coughed as smoke descended, saw a wall of flame down the hall, wriggled toward the toilet. Small explosions from canned goods added to the chaos beyond her, but Val saw that Laura's feet no longer blocked the opening. She hurled herself into the blackness of the crawlspace.

It was cool at first, then warm as she worked herself forward, finally agonizingly hot. She expected every moment to bump against an unconscious Laura, then saw the faint wash of light from an open access panel. Simultaneously she spied the propane tank, its copper pipes kinked, and knew stark terror. She could not go back, might bake if she went forward. She screamed, closed her eyes, fought her fear and writhed ahead under a boiling hot floor.

The hands that tore her from the access hatch were far from gentle, but they were blessed with strength. Tumbling to the ground with Rai, Val would have scrambled away but Rai slapped a hand over her mouth, forced her by gestures to take Laura's hand. Together, scuttling low past the electric barrow, they kept in its shadow and melted into the night toward the nearby arroyo.

Twice, Val fell while running down the arroyo. Once it was Rai. They had gone three-hundred meters when a billowing blast lit the sky. "My propane tank," Rai guessed, stopping to clamber up the incline. He reported that the pickup was still intact though dangerously near the fire, the mobile home's plastic shell in shreds, a tiny figure circling around the pyre with a rifle at the ready.

The distance was too great for Laura to monitor them; in any case she was barely coherent. "We're only draft animals to them," she shuddered. "They live in—children. The little one was hoping you really don't remember where you got that urine specimen, Rai."

"Let's go," he said, half-blinded by the glare he had watched. "If they get the pickup started we're still in trouble."

"They were certain we were dead," Laura said.

"So's one of them," from Rai.

"No." Val had seen the user's naked substance, creeping from its human integument with clear and steady purpose, flowing into the flesh wound of Encino Mangas. She gave a halting description, heard Rai snort at such a preposterous notion. "I saw it," she insisted vehemently.

"Val saw what I saw," was Laura's lackluster comment. "They are very old, very angry that we interfered just as they're about to—to finish their work. I don't know what that means. I know the one from the dead boy was considering your body, Val, as an emergency measure."

"Only he thought I was toasting, thanks to him."

"That, and you were a little too big, and female. Sharing that other boy's

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body was a last-ditch temporary maneuver; I'm sure of that."

Laura's endorsement forced Rai Koshare to accept the bizarre, at least as a possibility. Besides, he reflected, if they were *very* old, these sentient parasites might explain much of the Oshara anomaly. "Jesu Maria," he muttered aloud, "it might explain everything!" He stopped, thrilling to the nightwing touch of cool breeze, scanned the cloudless starlit canopy. "Pueblo girls don't mix with boys much, aren't allowed to explore much. Let's see," he said, juggling two trains of thought; "I've got some matches, knife; six hours to dawn, and Escavada will be over there..."

Val could not follow his ruminations and said so. It was very simple, he said: he had to accept the idea of hagridden pueblo boys and get back to San Saba immediately. If the San Juan Sheriff's people checked out Escavada Wash at first light, they'd find a signal fire; Rai's. "We can be there in maybe three hours. It shouldn't get very cold," he finished, with fleeting stress on the 'very.'

"You sound dreadful," Val said. "Does it hurt much?"

"Not a lot," he said in wonderment. "The kid let fly just as I was trying to warn you about the gasoline."

At this, Val began to giggle. "Sorry," she gulped; "I just realized the bullet must've gone into your mouth while it was open."

Rai allowed no whimsy in his dismal, "Whee-e."

"I know; but just be glad you didn't smell cheese," she said.

Silence, then a slow rumble, his *huh-huh* of wry appreciation. "I'd need bridgework. Valerie Clarke, you are one weird lady."

"And you're hurting. Shut up, Rai," said Laura softly. He did so.

They struck out eastward. Val, who had never learned to steer by the stars, was unfamiliar with the dim contours on the star-occulting horizon; she trusted Rai to know both.

An hour later they spotted the lights of the pickup to the south as it sped southwest. They had spent too much breath to squander much on the event—assuming it *was* the pickup—but breathed more easily when it passed from sight. If the long trek was a trial for Laura and Val, it gave the archaeologist time to assemble his data. Thanks to Laura's telepathic monitoring, Rai inferred that only a few of the parasites existed. And their concern over the anomalous urine specimen meant that they might be isolated that way. Their communication via touch explained little things, tactile signals he had seen all his life at San Saba.

If they reject Val as too large, they might need—his mind flinched at the thought but he forced it—fresh bodies frequently. Early in his undergraduate work, Rai Koshare had become familiar with the occasional Anasazi burial of a small body without a forearm, or a foot. If he accepted the testimony of his friends, that now made sense too. Some of the burials had been twelfth century; *and so was*

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Oshara. The need for new bodies, kept as penned stock and worked as slaves in the meantime, gave Oshara a purpose, and a reason for its unlikely site. Especially did it explain Rai's eldritch tactile sensations of children who became monstrous mature shamans without seeming to grow old.

Yet the trio could not guess the meanings of the tiny, flawed circuit tiles from Oshara—nor could they dream of the rescue beacon toward which the users were working so single-mindedly. The first priority, Val opined, was to get urine specimens that would convince officials in Gallup. Only then could Rai argue his friend Jeff Simes into suspecting that somehow, somewhen, a new species of predator had come to prey on Four Corners' people.

Neither Rai, nor Val, nor Laura yet imagined that their ancient enemies were extraterrestrial. Laura's special talent had proven a formidable tool, capable of quickly unearthing facts that had long been underfoot—but she had not been employed fully. Rai was beginning to fear from Laura's depression that the tool might break, might already be strained beyond repair. Rai was in the position of the craftsman, in love with a tool, who might use it wisely but not too well. Armed with only the sketchiest norms of user behavior, the trio failed to give their enemies enough credit for lethal ingenuity.

The little signal fire of ocotillo seemed bright enough at dawn, but Rai was kept busy with his knife, cutting the burnable branches to keep the blaze alive as the sun rose over San Pedro Peak. The patched Cessna, when it buzzed in from the west an hour or so later, banked steeply and responded to their soliciting waves with a wingwave of its own before it touched down nearby.

"Gil Rojas," said the short, square-built deputy, extending a hand as Rai identified himself. It was a tough little hand with prominent veins and heavy tendons. "We talked before, Dr. Koshare." He doffed his mandatory crash helmet, passed a forearm across his sparkling dark brow. "Be a scorcher today," he added as if pleased by the prospect, then turned to the women. His slate eyes shuttered at Laura, whose wraparound sunglasses were now bits of Oshara slag. He glanced at Rai more closely, clucked his tongue: "Thought you said nobody was hurt."

"That was before we got shot, burned out of a trailer house, and robbed," Val began. "You won't believe this, but—"

Rojas, a chauvinist of the old casta school, cut her off. "I could tape your statement after you see a sawbones," he said to Rai. "Sounds like you've got a two-bottle yarn."

"We won't stretch anybody's credulity," Rai said, with a look toward Val that was full of significance.

Rojas massaged his graying thatch. "This ol' Cessna's a four-seater, but she won't lift four out of high desert. Say we taxi to the old Bonito aid station?"

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There was no real choice and soon they were moving westward, parallel to the broad arroyo toward Pueblo Bonito; the Cessna's tail high, the engine's drone catastrophically loud, Rojas soundlessly cursing obstacles as he taxied at sixty klicks per hour over the generally downsloping terrain. They ended by deplaning near the lip of the escarpment overlooking Pueblo Bonito, and trudged down between bluffs of tan and bright ochre.

The Park Service nurse had just arrived, a bit late for her eight-o'clock opening time, a fluttering brood hen who clucked over the two bedraggled Anglo pullets. She seemed dangerously near pecking at Rai after a single close look at the wound in his cheek. "That is a gunshot wound, sir," she pronounced as if spying a weasel in her nest. "Your temperature is normal," she went on, whisking a fever strip from his forehead, "and if you want suturing I suggest you visit Farmington General right away. That could be septic." Her manner suggested that Rai himself was septic, that she had seen Amerinds with bullet wounds survive worse; she dismissed him quickly. Valerie Clarke's slightly blistered palms were things she could treat

Gilberto Rojas watched it all without a smile or a frown; he had long since lost his capacity for surprise at caste prejudice. "I c'n take you to Farmington," he offered. Rai accepted, prepared to leave Val and Laura to the ministrations of the White Leghorn.

Rai ducked into the nurse's orange-pekoe scented office and promised Laura he would be back as soon as possible, judging that, "You'll be safe and with Rojas I'll be okay."

" 'Sawbones'," Val mouthed at him over a demitasse cup. "The man actually said, 'sawbones'! I've met some throwbacks, but jeeeeez..."

"Rojas learned about the world from people who seldom get to town," Rai said. "There are some who still bag their venison with black powder rifles."

"And there's worse still, Kemo Sabe." Val indicated her palms. "Take care of yourself." He grinned, nodded, ducked out again.

While walking toward the aircraft, Rai spoke into a pocket tape unit for later transcription by the sheriff's office. He identified the San Saba boys as the pair, plus one, he had seen early Friday. He suggested for the record that the boys had only wanted to steal the yellow Datsun, had probably lost their heads when caught at it. He did not admit that he had deliberately toppled the water tank onto Kimbeto; above all he was not ready to state what, according to the women, had issued from the corpse. Striding up a very real talus slope on a very real New Mexican morning in full glorious daylight, Rai Koshare entertained doubts of his own. Besides, he told himself, his cheek hurt and he sounded like hell. Time enough for those details when he had something to tie them to.

Rojas turned to him as they strapped in. "So there's a body or two

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at your dig. Mind if we fly over?"

Rai knew the question was pure civility; it would have to be done. Rojas looked surprised, but not very; there were a lot of things a man could miss repeatedly, flying over a few thousand square klicks of emptiness and shadowed buttes.

The Cessna vibrated and bounced, and then they were banking around Fajada Butte. Rai did not have a helmet and could not follow the radio conversation that began as soon as Rojas plugged into the system. But he knew the sun should be on his right. It was on his left. He leaned forward, pointed north.

The helmet bobbed and Rojas shouted: "Sheriff Hightower's been calling. We got a crash-and-burn west of White Horse. Priority." Rai settled back as the Cessna surged ahead. Rojas made another call, shouted to Rai that a Q.R.U., quick response medical unit, would be en route from Gallup with another deputy. Apparently the accident was on or near McKinley County land.

Between Crownpoint and White Horse lay a cluster of lakes with verdant meadows near the blacktop road which Rai had traveled a hundred times. Soon he saw a smudge of dark smoke scrawling skyward, then a faint orange flicker near the road. He had expected to see an aircraft but saw that it was a pickup, lying on its side just off the road. A human body lay unmoving nearby. Rai Koshare nurtured an awful premonition.

Rojas brought the Cessna in gently, avoiding a pair of horses which took alarm anyway. They passed nearer to a small flock of sheep which continued to graze as the Cessna hurried toward the still-smouldering wreck.

The two men trotted over the blacktop, Gil Rojas fumbling with a hefty fire extinguisher as Rai circled the remains of the once-yellow Datsun. Without a word Rojas handed the extinguisher to Rai and went to kneel beside the youthful body. Rai winced. He had seen the boy grow from infancy, and knew that Chuzo Dinay would never reach manhood now.

The tires were still burning. Rai quenched the flames into smoking embers, squinted into the shattered remains of the cargo shell, and swallowed against the sour taste in the back of his throat. The bodies inside were small, too badly charred for recognition, too jumbled for a sure body count. Rai felt certain that he could recite at least two names. He realized that Rojas was calling, moved toward him on leaden feet.

Rojas pointed at the headband. "San Saba. Know him?"

"Chuzo Dinay," Rai nodded. "There are others still in there," he added, nodding toward the Datsun. He swallowed again.

Rojas cursed, strode to the wreck, leaving Rai to stare at the terrible eviscerating slash that had ended Dinay's life. The body had evidently been flung twenty meters, but at a ghastly price.

"This was my pickup," Rai said in a soft tone.

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A quick hard look from Rojas. "Sure about that?"

"My license plates."

"I smell diesel fuel," Rojas said. "Must'a gone up like a torch."

Rai nodded, thinking how much diesel fuel smelled like the kerosene used by many San Sabans. And the Datsun hadn't been diesel; in any case, the gasoline had doubtlessly helped the blaze. Sadly: "I wonder if anybody saw it happen."

"Call-in was from some Anglo salesman who didn't want to be involved. It was burning when he saw it. *We might learn something from up* there," Rojas said, pointing toward the valley ridge.

In the near distance, a flock of several dozen sheep moved in their direction under the urging of a boy and a brindle sheepdog. Rojas put fingers to his mouth, blew an incisive note that curved downward like a scimitar, waved toward the small shepherd. The lad waved back, gave orders of his own. The series of gestures and whistled tones comprised a language that Rai had never mastered. The dog hurtled around the flock, turning its leaders, bunching it as the boy strode away. Rai recognized the boy as Hospah Ramirez, another San Saban; so the dog would be the Ramirez sheepdog, Billichay.

Hospah's route took him past the half dozen or so sheep the Cessna had passed earlier. He paused to look them over, though the spray-painted 'D' on their backs was plain enough; continued walking, giving new instructions to the dog who barked at his side.

Billichay evidently had two settings: stop and hell-for-leather. Before little Hospah reached the road, the dog had bullied the new group of sheep into the main flock.

Rojas shuffled away from Chuzo's body to meet the boy who stopped to survey the wreckage, recognizing Rai with a troubled nod. "I wouldn't go any closer," Rai said, softly.

Rojas used the recorder again as he questioned Hospah Ramirez. Yes, Hospah knew it must be Dinay who lay among the weeds. "Chuzo asked *me to drive his flock here this morn*ing. He and friends borrowed a pickup to check on some strays; Chuzo said they might be here. We left San Saba about dawn; they left me at the Dinay corral north of here." Hospah glanced again at the wreck where rubber sizzled and metal pinged. "Joy ride, huh?"

A headshake: *no.*

Rai earned a frown from Rojas as he intruded into the interrogation. "Who else was with him, Hospah?"

A long silence, as though the names might have some power to destroy. "Ziu Tiamunyi," he said, staring. "Mateo Betan; Hatchi Leon, Naka Flores, Encino Mangas."

Rojas sighed, his voice more fatherly than professional. "All friends of yours?"

Even at his age, Hospah Ramirez knew ties closer than friendship. "All San Saba," he replied.

And something else besides, thought Rai. With careful phrasing he

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asked, "Do you know where Carson Kimbeto is?"

The boy's face was expressionless. He shrugged. On the slope, Billichay barked once. "I have to go now," he said, and turned away abruptly. It could have been his unwillingness to be seen crying, but Billichay stood with his ears cocked, and a shepherd's first duty is to his flock.

"Hell," muttered Rojas. "I bet he knows that pickup wasn't just borrowed." He made no move to call the boy back, strolled to squat near the blackened pickup. He jerked a thumb toward Dinay: "Seems like the big kid might've pulled one or two of the others clear."

"With a slice out of him like that?" Faintly now, Rai heard the sound that had alerted Billichay: the thrumming *whop-whop* and whine of a hoverchopper at full speed.

Rojas extracted a cassette, turned a level look on Rai. "Just between us, that looks like a knife slash to me; seen enough of 'em in Farmington. And the body don't look like it was throwed there. But this is McKinley County trouble and they can have it with my blessing."

Rai walked near the body again, studied the awful wound. "But who did this?"

"From what you said him and his pals done, he must've knowed he was headed for juvie correction, Doc. Maybe he done it himself."

"Jesu Maria! With what; glass?"

"More likely a switchblade. You can look around, but don't take anything." Rojas turned toward the hoverchopper, its 'QRU' dark against the shining hull, and waved it from the shuddering Cessna. With stub wings, rotors and internal fans, hoverchoppers had a way of blowing lesser craft into the next county.

Rai toed the grass around the body, stooped to pat the pockets of the bloody demins. The knife was there, and Rai tingled as he pulled it free with furtive fore-and-middle fingers. The emotional loadings that thrilled his fingertips were fresh and strong: excitement, elation, hatred—but nothing faintly resembling remorse. The knife was bloody; and so was the mind that had controlled it. An Oshara mind.

The hovercraft settled and Rai thrust the knife back into the pocket, wiped his fingers on weeds and stood up.

Rojas was relinquishing a cassette to his McKinley County surrogate as Rai moved near, blinking from the dust. Two paramedics, both Anglo, one female, essayed rapid checks for vital signs in Dinay, then prowled into the wreck. They soon managed to pull two intertwined objects, ragged, unfinished-looking things, onto the blacktop. If they had hoped for some miraculous survival, they were disappointed. Nothing human had lived through that inferno.

Rai's cheek wound, the woman judged, was clean. She was tall, rangy, plain-faced, deft. She admitted, "You could use a stitch or two, but cosmetic sutures need a better tailor than I am. We'll lift you to Memorial in Gallup."

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Rai agreed readily; he had a lot to do in Gallup. He turned to the blond young McKinley County deputy, whose face showed spots of high color under his Smokybear hat. "If you don't need me,—" he let it trail off.

"Don't get out of touch," rapped the deputy. Then turning back to Rojas: "You come down here and hand me five pounds' worth in a two-pound sack, mister! Suicide, hell; let the examiner decide."

Rojas held innocent hands open, shook his head. "Just tryin' to help," he said, and walked away stiff-legged toward the Cessna.

"So I stay here with a half-dozen clinkers until the wagon comes," said the young deputy, kicking a weed.

Rai started to observe that he had driven off an ally, then caught the eye of the husky male paramedic, knew it would be only a goad. "I could use that lift," he said.

The woman took the hoverchopper controls and lifted off without further comment. Rai watched Gil Rojas cajole his old craft over a ridge, wondered how the man would react to the other remains at Oshara. It seems likely that the nightmare of ancient parasites in small Amerind bodies had been exorcized by fire. Surely nothing could live within those pitiful charred bodies; but if anything could, Simes might find out. Rai's eyelids drooped from exhaustion as he peered from the polymer bubble. The last thing he saw of the scene was a flock of sheep, moving ahead of a brindle dog and a small boy.

Two of the sheep touched noses as they vied for a tuft of range grass; the dog received an idle caress from Hospah Ramirez. Had Laura been near, she might have gleaned scraps of a user interchange.

Do not look back, cautioned the one who had been Chuzo Dinay. *The deputy seems angry and suspicious.*

The ex-Naka Flores answered, *Thanks to you. There was enough time for you to pass between bodies without the old-host incision, had you not lost your courage.*

Had you not allowed the animal to take fright at the fire, was the rejoinder. *We are hidden. So are the subspace beacon modules. What more could you ask?*

The corpse of the fortunate fool Koshare. The comment needed no response. On this point, the users were in total agreement.

An intern at Gallup Memorial probed Rai's cheek with a hemostat, took two sutures with six-oh nylon, finished with synthoderm spray. Ten minutes later Rai had signed a statement and walked from the hospital. His wristalarm claimed it was just past midmorning but his giddiness suggested midnight. He sought his insurance agent in naive optimism. At half-past eleven he was walking down Wingate to the auto lots, grumbling over delays in insurance payments and scanning the available rental vehicles. He chose the first small pickup he found with four-wheel drive and radiophone, a red two-liter blown Mitsubishi diesel of middle years, and

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showed the requisite charge chits.

Shortly after noon he climbed into the Mitt, which fitted him like a real one, then made his first call. The White Leghorn clucked for Valerie Clarke and, while waiting, Rai wondered why he had not asked for Laura. "We're wheeled again," he exulted, and stopped, aghast at her reaction.

"... Thoughtless inconsiderate nik-nik," she stormed, "we were afraid you'd found your Datsun before they found *you!*"

"Uh, I'm sorry, Val. I've been in Gallup getting sewed up and filling out forms and—"

"And Laura's under sedation and I'm beside myself enough to be twins! Nurse Milford heard about a horrible accident an hour after you left, and then some tourist said it looked like a Datsun pickup, and finally we got its license number and by then we knew there were no survivors and awgod-damit Rai," and he sat openmouthed as she snuffled her way back to an even keel. A long inhalation. Then, "Thanks for surviving. I could kick you and hug you both."

"It's a date," he said, then told her what he knew of the Datsun's last trip, adding, "I want to talk Simes into doing autopsies."

"Are you going to tell him what Laura and I saw?"

A hesitant, "I may have to."

"Don't. I was with Laura at an inquest once. Professionals simply don't believe her—anything about her, even with proof. That included my old friend Chris Maffei, an emdee who was with us at the time. They figure there's got to be a trick somewhere. Very polite, but you can see pity in their faces. And all *you* have is our word for what we saw. Tell the truth and Simes will say you're batty as a church steeple."

Rai had to agree; his own sensations were evidence.

Val: "By all means, tell him about your tactile sense! You'd find yourself looking out of a room with marshmallow paneling..."

"Okay, okay," he chuckled. "May I speak to Laura?"

He could, she replied, if he wanted to hear snores with a southern accent. "Miz Milford broke out her private stock of valium for Laura; the poor kid is completely around the bend about you—as you damn' well know."

Dry mouthed, tongue-tied: "How would I know?"

"Don't give me all that crap, Rai Koshare, it sticks out like pin feathers all over the both of you." A sigh.

Rai changed the subject, promised to call again, rang off to make another call. Simes was at lunch, but would be back at one-fifteen. Rai needed no time to decide how to spend the interval; he parked between a sporting-goods store and a pharmacy, grabbed two candy bars, wolfed part of his lunch as he entered a sports shop in search of something he had always meant to buy: a handgun.

Things hadn't changed much. As a puebleño, Raimondo Koshare could not buy a plinking pistol without

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hopeless delay. "I know," said the proprietor, a sad-faced Latino with wrinkles like a relief map, "the B.I.A. cannot stop you today. But the new law says you must have countersignature by a tribal council. You should've said you were Mandan; there aren't any councils."

"There aren't any Mandan either," Rai growled. Then he said half truthfully, "Okay, I'm a casta; I don't live on the reservation."

The old man favored him with a broken smile, slid a form toward him. "That is a different horse of color. Fill this out and you may buy the handgun like anyone else—after seven days."

Rai stared at him for a long moment, then wrenched the wrapper from his other candy bar in a motion that made the old man jump. Rai took a savage bite, glared, chewed as though the candy were a legislator's ankle, turned to leave.

"If you must have it right now, señor," the old voice cautioned gently, "perhaps you should not have it." Rai nodded, made a special effort to leave quietly, and spun the wheels of the red Mitt as he headed for the state offices, a plastic pseudo-Taos across town.

The Simes office was on the first floor, protected by a long counter and the stern spinster behind it. Rai announced himself, heard a familiar voice over a transom. It was dry, resonant, Anglo: "Better let him in, Lucy, He sounds violent."

Jeff had lost a little more of his sandy hair, the balding temples leaving a vee of short curls. The vee pointed to a strong slender nose that was just right, Jeff had once joked, for prying into tribal business. The hand was like its owner, thin and nervous and decisive. Rai shook it, flung himself into an old leather chair. Simes nodded toward the window: "You snuck up on me; I was watching for your yellow pickup."

"You and everybody else," Rai said, and told him where it was.

"Good God," Simes breathed and sat back, drumming fingers on his chair arm. "I read about that on the routine printout but I didn't connect it with you." A new suspicion widened his corneas: "Don't tell me it had anything to do with those specimens!"

"Maybe not," said Rai, unwilling to surrender a tactical lever, "or maybe so." He named the boys whose bodies were probably among those in the wreck. "Can we have a privileged communication, off the record? *Any* record," he stressed.

Simes shrugged, then flicked a toggle. "Now we can."

"What if I told you those kids comprised a San Saba gang that were—well, physically different from anybody else?

"Different inside. A San Juan deputy thought Chuzo Dinay might have suicided, cut himself open. Sounds crazy, but I found a pigsticker on the kid. Maybe a very special kid, Jeff. Some mutation, maybe a recessive peculiar to San Saba. I don't know," Rai shrugged. "But different in ways *they* know. Some kind of parasite?"

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Simes smiled, the intensity fading from his face. "Schistosomiasis doesn't make secret societies."

"Forget the liver flukes," said Rai, "but remember that urine sample. On my reputation as a trained observer, I tell you that specimen was not contaminated."

Simes watched his fingers fidget, found a cigarillo, chewed its tip without lighting it, his eyes never meeting Rai's until he had composed a response. "I listen to my experts, Rai. Tell me about a pot I dig up and I'll back you. Tell me about chondroprotein in a urine specimen and I have to correct you. It doesn't happen."

"Let's say it's hypothetical. If it *did* happen, and one or more of those kids showed the same deviance, what would you do?"

Viewing it as a purely intellectual exercise, Simses lost some of his caginess. Autopsies, he supposed, followed by strenuous efforts to get San Saba elders to reconsider their position. "I'd go the route depending on what the examiner found."

At that moment a new ploy clicked into Rai's consciousness. He grinned. "And what if you already wanted those specimens anyway?"

Puzzlement: "Hell, we *do* !"

"Keep it hypothetical," Rai said with ponderous coyness. "*If* autopsies really showed anything at all strange, why couldn't some San Saban with anglo education use the findings and his own superstitions to persuade the elders to do what the Anglos want, for once?"

Jeff Simes threw his head back and showed his wisdom teeth. "Now I see it," he laughed, seeing only half of it. "Autopsies often show minor anomalies. You'd present it as some kind of ju-ju."

Rai judged that the moment for perversity had come. He stood, opened the door. "You'd have to convince me—*if* I were going to convince the elders," he winked.

"You'd make some serious enemies in San Saba," Simes said soberly.

Rai paused. "I tried to buy a handgun this morning. No dice."

The Simes fingertips drummed again. "If it's purely for defense, try this." He rummaged in his jacket, bringing out a small silver cylinder. "Never know when I'll need it. I sprayed it silver to make it look like a cigar lighter." He handed it over.

The object had the look and the thumb-button of a lighter. Rai saw the safety latch, flicked it off.

"Jesus Christ, not in here!" Jeff Simes waved his hands, only half amused. "It's cee-ess gas."

"As in chickenshit?"

"As in orthochlorobenzalmalonitrile," Simes quoted, relishing the fistful of jargon. "Developed against terrorists, years ago. Imagine tear gas that builds a fire in your lungs, squeezes your chest flat for you, drops you in your tracks,—and leaves no ill effects in a half hour. It'll paralyze a horse."

"I like it. I can't pronounce it, but I like it." Rai pocketed the cylinder, made a mock salute, and walked out.

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Rai picked up a small recorder and a week's canned goods in Gallup after considering his Oshara losses. His shakedown run to Pueblo Bonito taxed the tough Mitsubishi. The stretch of blacktop near Crownpoint showed some fire damaged, bits of glasss at the roadside. Rai found it difficult to believe his Datsun had smouldered there only hours before. You had to really work to get it over on its side, he was thinking, and shuddered when he found himself wishing he could have been on the scene for ten minutes before the fire. The accident—if it had been an accident—had occurred at roughly the time when Rojas was landing at Escavada Wash—if you could believe little Hospah Ramirez. Could the boy be harbouring one of the—he was beginning to identify users with the Ogre Katcina—the ogres? All of them? He recalled Laura's datum that two ogres occupied one small body only in desperation. If any survived, how many might now be crawling inside the Ramirez boy? A urine specimen might yield the answer...

Unfolding from the Mitt's cab outside the Bonito aid station, Rai spotted Val's bleak features through a window, saw them transformed in joy. A moment later Laura burst from the place, running toward him as Val Clarke emerged behind her.

He clasped Laura's yielding warmth to him, murmured responses to her sobbed greeting, and when he opened his eyes he was peering through the silver-blonde hair at Val who stood with both hands clenched at her sides, her lower lip caught between her teeth. Something deep inside him twisted like a small animal; he knew that Val had lagged behind, serving as Laura's eyes.

He lifted Laura from the waist with one arm, grinning foolishly, reached out to Val as he took a stumbling pace toward her. She eased into the embrace, laid her head on his chest and hugged him in silence as he kissed the top of her head.

"We love you," Laura murmured. It was not clear to whom she spoke, nor did it seem to matter.

"I told you I'd try to applaud," Val replied. "Can't you hear me clapping?" she said happily.

Rai chuckled to hide the fullness in his heart. "I'll never understand Anglos. Hey, we're wasting time; lots to do in San Saba."

The women made brief goodbyes to the nurse and then piled into the Mitt. Rai took them along faint access roads as he described how Simes had been duped into doing his part. At the 'dobe, he left them over Laura's objection as she insisted, "Now that we're together, I don't want you out of arm's reach. Ever."

He promised to return soon, and, "Cast your mind around for those little ogres. You never know..."

Waiting, they tidied up premises that did not need tidying. They had already begun to worry when Rai pushed the door open with his familiar, "I'm hungry."

Together they made piki bread

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again, crumbled it into a salad that might have been scrambled tacos (and tasted better). Laura sensed no lingering alien presence. Val suggested a stroll around the square, just to be sure, after dinner.

To this Rai was amenable. His only worry at the moment, he said, was the Ramirez boy. "I talked to Hospah's folks. His father met him near the sheep pens this afternoon and brought him food. Poor kid was upset about the crash, but his job will keep him occupied. And of course he's got Billichay. Twenty kilos of dog like that are worth a pair of bodyguards."

They disposed of the dinner debris and, at Rai's urging, sat around the new recorder. Their informal depositions might make no difference in the long run but the discussion itself, he said, might clarify their problems. He did not add, though Laura sensed, that such a tape might outlast them.

For an hour they wrangled cheerfully, made erasures, found agreements. Finally Rai flicked the machine off. "So much for facts; now for the wild surmises. Poor Jeff, and almost anybody else, would think we're on drugs. We can always claim we're trying to fit facts into some Four-Corners mystique."

"Mystique," Val quoted. "equals horseshit." She laughed aloud, tossing her sphere of curls in remembrance. "That was ol' Professor Yendo at Tempe."

"Don Yendo," Rai grinned; shook his head in pretended deprecation. "But he also said, 'speculation between consenting adults is no longer a felony.' "

Val: "How'd he ever get tenure with such an outlook?"

Laura was restive, felt vaguely excluded from the old-school talk. "Maybe they needed a gadfly," she supplied impatiently.

Rai: "Took a good school to know that. Yendo wasn't oversupplied with tact; he just dared you to think."

"So let's do it," Val prodded, snapping the recorder on. "To start with, I suspect those ogre children knew we were onto them, either with the urine specimen or at Oshara."

"Or both," Laura said quickly. They proceeded to weave a tangle of fact and folderol, ending with general agreement that specimens from San Sabans would tell more about those who ran than those who willingly contributed. It was after dark, the guessing game beyond its most productive period, when the buzzer sounded from the Mitt. Rai went out to answer the call while Val stowed the recorder on a shelf. She and Laura walked outside to be with Rai.

"...Perforated ureters don't mean a thing to me," Rai was saying in aggrieved tones. "And bone tumors aren't unusual here."

"No-o," answered a voice the women knew must be Simes, "but they're pathological. Examiner isn't finished but I was standing on his tail until he had something.

"Tumors in two of the burnt bodies and in the Dinay boy. Also ureter perforations in four; maybe all six, but the

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viscera were too badly charred to tell."

Rai glanced at Val, made a grimace which she returned, then said to the mouthpiece: "How could they be burnt that deeply?"

"I wish this were a scrambler circuit. All of those kids probably died of shock and blood loss before the fire," he continued. "Long gashes in the arms of three; the other two had been laid open like a pre-med's cat. Same as the kid who wasn't burnt. Tie that," he said. He sounded hopeful.

Pause. "I can't, Jeff. Look; if, ah, I should turn up missing some day, look around my 'dobe for a cassette. It might explain a lot; or it might be sheer—" he winked at Val, "—mystique. Are you going to release anything suggesting homicide?"

"Mine isn't the final word, but I've heard talk about a suicide cult. Touchy subject; I think they'll sit on it awhile."

"Good. I wouldn't have a prayer of getting you here for those specimens if San Sabans felt defensive about multiple killings."

The men agreed that tumors and perforations were the best evidence for the tribal council. One was familiar enough, the other arcane enough, to provoke discomfort among elders. Simes added that they had found no liver fluke damage and, he replied in puzzlement to Rai's query, nothing else that shouldn't be present. Simes said he would accept a call at home, could be in San Saba with his staff in a flash—well, he amended, two hours at most. Rai rang off, then suggested a stroll that would not be entirely casual.

Walking slowly in moonless dark, they kept a polite distance from contiguous walls of residences. At one point Rai pulled his friends to a halt. Softly: "Check this place. Do you sense anything odd?"

Laura stood silently, platinum hair falling over one shoulder, a vision of delight to Rai in the soft reflection of deepset windows. After a moment: "You're pretty neat yourself, fella," and then she changed the subject. "I make it two adults, two children. A boy is worried about his sheep; scared is more like it. The girl is watching TV. Ahh, the father, I think—"

"That's enough," Rai said, properly abashed at his prying into other lives. "That was the Ramirez place. The kids are Zana and Hospah. You're sure he's okay?"

"How can I be? But those gory little monsters at Oshara weren't afraid of the lot, much less their own sheep."

"Stay alert," Rai replied. "When we've made our circuit I'll have to leave you again for awhile."

Their objections were useless. There was simply no place for Anglo females in Rai's confrontation with even the most liberal of tribal elders. He had the respect of Chamas Tesuque, leader of the Scalp Society, and other ties almost as good. But Tesuque pulled the most weight. The old man had been known to roust his fellows from sleep over a sudden crisis but he was no fool, would not be hurried, might require days to reach a decision. Rai saw the women into his 'dobe before heading to Tesuque's place across the

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square. He heard the unfamiliar squeal of the iron bolt in his normally unlocked door as he moved away.

Two hours later, Rai knocked for admittance into his 'dobe, visibly irritated that he had been locked out despite all logic. Val understood, accommodated him with coffee, gently nudged the dozing Laura and pushed the steaming mug across the table to Rai. He looked, she said, like bad news on the hoof.

Rai released a wan smile as he sipped. "Just wrung out. Old Tesuque has a radiophone to keep tabs on his broker. Damn if he didn't call Jeff at home! Very canny gent, Tesuque: asked Jeff straight out if the boys had been infested with demons."

Val: "Ah. So a state official had to commit himself to the belief in witchcraft and the demonic?"

"No, and it's a good thing he didn't. Tesuque knows the Anglos don't believe in it. If Jeff had claimed to, Tesuque would've known it was all a shuck. Jeff is canny too—or else it stuck in his throat to tell such a lie. Oh, Jeff hedged and qualified, and ended by repeating that all the bodies featured unusual conditions. Inside the boys were things grimly different from the norm; and if Tesuque or some loose-tongued archaeologist wanted to hang a witchcraft label on it, he couldn't stop us."

Laura, yawning: "And he didn't want to, either."

"Exactly. Tesuque asked if body wastes and puebleño blood would help them spot other such people, and Jeff said maybe and that was all Tesuque needed from him."

Val: "Then it's settled?"

"Nope, but it's on an agenda. You don't rush an elder, you let him rush himself. I've had my say. It'd be very bad tactics to ask him about it again. Meanwhile—" He trailed off, sighed into his hands, reached for his coffee.

Laura placed her hand over the mug in gentle reproof. "Meanwhile you need sleep, not caffeine. And stop worrying about Oshara; we'll go with you tomorrow."

Rai nodded and stood, stretching until his joints crackled. He turned toward his study, saw the second pallet arrayed next to his, looked back quickly enough to catch Val's sad smile as she knelt on her own, now solitary, pallet. The huge brown eyes held no anger, no accusation. Val pointedly turned her face to the wall as Laura shrugged lithe and full-breasted from her wrap to lie near him. Rai felt a moment's surge of desire as he switched off the light, felt Laura's cool hand on his cheek. He opened his mouth, paused, felt Laura's lips brush his own.

She asked a provocative question. No response. She asked it again, her tonguetip inquisitively in his ear. No response; he was asleep. After a moment's pique, Laura cursed him softly, smiled to herself. Even for a big man, she reflected, he'd had a busy day.

After breakfast, the trio packed sandwiches and beer into the Mit-

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subishi. The pueblo pulsed with life; Val misread the cause. "Why so many people dressed up? Have we stirred a hornet's nest?"

"Not exactly; it's Sunday. The better Catholics went to early Mass." He exchanged nods with one stalwart patriarch, erect and Hawkeyed under the bright San Saba headband that matched a woven belt sash. The old man did not pause, but continued across the square. "Not him, though. Tesuque's wearing badges of office this morning."

Laura, murmuring: "He likes you. But not us."

"Quit prying," Val said. Then, "So that's Chamas Tesuque? Seems like he'd stop to chat."

"Not without something important. You have to realize," Rai said softly, "that everybody in San Saba knows there are seven boys dead because of my Datsun—or so they think. They're probably glad the Datsun's spirit was punished, but I was connected with it."

"So the car was a locus of evil, somehow," Val mused.

Rai: "Something like that," as though he half believed it. He swung into the cab, took the direct route to Oshara.

He called the San Juan Sheriff as they sped across the rock-strewn landscape. Deputy Rojas had found Oshara, then directed a vehicle there the previous afternoon. They had taken Kimbeto's body, had made their obligatory holotapes. All the same, said the voice from Farmington, they'd like to talk to Dr. Koshare. Rai sighed and agreed. He was not surprised, then, to find the same sandblasted Cessna nearby as they arrived at Oshara.

Sheriff Rufus Hightower was rufous enough under his stained Smokybear, with orange hair spurting from an open shirtfront that stretched over his big hard belly; but at Laura's height, he did not tower. His splayfooted stride in rundown cowpoke boots invited the notion of a comic stereotype, if one ignored the hard little blue eyes beneath tufted brows. They would water a lot, Val decided, but they wouldn't miss much. Hightower was alone—if one discounted the long-barreled forty-five and the microvid he wore.

Hightower made no comment as Rai picked his way between limp hunks of glistening glass matt, all that remained of the mobile home's shell after the polymers burn away. The metal chassis protruded from stinking black debris. Rai stooped to inspect a scatter of small objects, groaned to recognize leafy ash as the contents of his old file cabinet.

After a circuit of the burnt tent, Val called Rai over. The tent had burnt furiously. Rai nodded: "I'd stored fuel in there."

"But it was a long way from the trailer," Hightower said gravely.

"My propane tank blew up."

"Did it now." The sheriff stumped over to the ruin of Oshara and pointed to the ground. "Did it run your pickup over here, too?"

Rai saw the tracks twining back and forth, then noticed the scattered vigas and stone where a wall had been. He

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blinked, worked his jaw; somehow, probably with his tow cable, the place had been pulled apart. "But why?"

Laura moved closer, eased an arm around his waist as she sensed the ruination of his patient work.

Hightower, offhandedly: "When did the bad blood start?"

"That's terrible," Laura said. "Rai couldn't believe those boys were hostile, at first. He liked them!"

A calloused hand went up. "Easy, little lady. This is man-talk."

From Val, some meters distant: "Oh, Lord, another chauvinist. Come away, Laura."

The women surveyed the house trailer as Hightower pressed Rai about his dealings with the boys. Rai agreed that the wanton destruction at Oshara was too thorough for a sudden childish prank. Yet they were far from reservation land, said Rai, and asked: "Why do *you* think they were after me?"

"Why," said Hightower, switching on his microvid for its audio, "were your prints on a switchblade in Chuzo Dinay's pocket?"

"Oh." Hightower's drift was clearer now.

"Helluvan answer, Doc. The McKinley County folks were hoping for a better one."

"Your deputy said Chuzo might have had a knife," Rai explained. "I checked; he did." He faced the barrelish little man squarely. "I also said that to a man in State Health. And I was in Escavada Wash while my Datsun was burning."

"Best alibi in the world," Hightower said easily, "unless we can figure how you could've got from Crownpoint to Escavada quick-like." He grinned up at Rai: "You don't happen to own a plane?"

Negative headshake. "At least I see what you're driving at." He dared not look at Hightower as he said carefully, "I thought maybe the kids were on drugs. I don't know why they'd go after me or my friends. Or each other."

"Me neither, Doc. But I'm tryin'. Do yourself a favor and don't take any vacations. Them either," he said, jerking a thumb at the women. It was his only indication that the women visitors interested him.

Rai said Oshara had been intended as a vacation for his companions. Hightower supposed he had no objections if Rai sifted the burnt site; but by the way, he wondered, why did state medical examiners want the small body in the Farmington morgue?

Good old Jeff, thought Rai: those perforations had his curiosity aroused. Aloud he said, "Some kind of parasite, I think. I'm just as curious as you are."

The big hat came off; a sleeve mopped the sweaty brow. "No you ain't, and in a way you sure are." Another grin. By this time Rai knew the rictus as a mark of aggressiveness. "In any case, don't let me hear you've decided to pack a gun like you tried in Gallup. But step lively. Could be your enemies ain't all dead."

His hat exchanged for a crash helmet, Hightower puffed his bulk into the Cessna, waved and smiled his re-election smile at 'the ladies,' cranked

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the old craft into action. They watched until the Cessna turned toward the northwest, its whirr fading into the vastness of the desert. Laura broke the silence: "I hope he's wrong."

"You heard him then," Rai said. "My alibi? Of course he's wrong, you were with me all the—"

"About our enemies," she cut in. "I hope they're all dead."

"Hightower just doesn't want any more trouble on his turf," Val said, adding brightly, "so what can we do about this mess, Rai?"

The archaeologist first checked out the Oshara ruin, which was not hopelessly scattered. The tent was a sad display, though; and the mobile home virtually a total loss. Several maps and many notes had scattered from the tent without burning. They found more papers wind-scattered in the arroyo, more still beyond it, and a few artifacts of stone and pottery blown from the mobile home onto the hard ground. Most artifacts from the site were irreparably damaged or lost, but the dig could continue. Their spirits were soothed by ham sandwiches and bock beer, two hours later.

Then Rai led the work on the tent wreckage, finally moved his water tank. The electric barrow, paint blistered and tires heat-checked, was operable. He levered the now-empty tank onto the self-propelled platform. He avoided stepping on the dark stain near one corner of the solar panel; promised to dig up the bloody dirt and dump it; considered how that would look to Hightower; left the stain as it was.

They left on a note of good humor after Val found that the refrigerator had protected its contents. Upside down, three meters from the trailer chassis, its beer was warm but potable.

All three were whiffy from warm beer and hot sun when Val, enjoying her stint at driving the Mitt, drove past distant sheep pens and pulled into San Saba. Rai saw him first: a youth in his teens, squatting patiently in the shade of the Koshare 'dobe, who revealed a congenitally deformed foot as he stood. Rai hurried to talk with him, then turned back to the pickup as the youth hurried away.

Rai's smile was unconvincing. "Tribal council wants me at my convenience—which means right now. Wait inside." He ducked into his room, returning with a bright headband and a sash belt as Val was unloading their picnic hamper.

As he passed, Val made optimistic noises: "Maybe they're ready to allow the specimen collection."

"Lady, I sure hope so," he muttered, and strode away toward a distant kiva.

Laura took the hamper, stood very close to Val. "He's worried about the deaths," she said, "and whether the elders think he provoked it all."

Without another word, very much aware of their own alien status in this ancient culture, they sought the shelter of a locked door.

The pounding on the door frightened Val, who was dozing over a book; but this time it was a product of Rai's

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elation. "No more locked doors," he said without preamble. "We won't have to. I just called Jeff to tell him of the decision. Boy, I'm hungry."

Laura stroked his cheek on her way to the refrigerator, withdrew an enormous sandwich, slid it onto the table under his nose, sat down across from him as he continued: "Scalp and Clown and Medicine societies all decided to take the lesser of two evils. Jeff was asleep, but he woke up real fast when I told him to be here tomorrow morning. I am really hungry for some reason," he raced on.

No one but Rai had spoken since he entered the doorway, and they were amused at the ebullience of this normally taciturn man. He went on, glancing from one to the other. Tribal elders had long pondered San Saba's poor record in raising male children, had kept a strictly oral account of the personality changes that seemed to 'snap' in too many San Saba boys before puberty. Rarely was this noticed in unhealthy children. Often the same conservative boy who had no interest in leaving the pueblo vicinity seemed marked for early death or disappearance. Chamas Tesuque had somberly recounted all this to Rai in the kiva, surrounded by men of tribal substance as they smoked in firelit gloom and shared bits of some pulpy food which, Rai said, tended to bite back.

The strong sanctions of the old ways should have made dutiful followers of normal children. Plainly, they had not. Plainly, it was time to borrow ideas from the Anglos. The sooner San Saba underwent this new purification rite, the sooner they might be free of a long-harbored and evil Katcina. Rai inferred that as the tribal argument progressed, men who most objected to this new 'rite' now tended to raise suspicion in the minds of the others; if one shrank from giving specimens it seemed to imply that one had something which must be hidden. In a way it was poetic injustice: the crushing weight of conservative opinion turning upon the most conservative—and using the same social sanctions. It was a coercion they all knew well. San Saba readied to welcome the State Public Health Service.

"This is all sensitive stuff," Rai added. "I'd be persona sub grata if they knew I'd told you. But you'd read it in me, Laura; and why should Val know less? You know something? I could use something to eat."

"You could look in front of your nose," Val said dryly, and laughed as Rai blinked stupidly down at his untouched sandwich. As he tore into it, Val wondered aloud if he had been nibbling mushrooms in the kiva. Rai did not know; to him it seemed unimportant. The important thing, he mumbled through ham and cheese, was that between Laura's telepathy and Jeff Simes's diagnostic tests they would soon have some evidence whether San Saba was free of the alien Oshara influence.

"I only wish you'd seen what I—we—saw coming out of that boy during the fire," Val shuddered. "If it's *that* alien, your evidence had bet-

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ter be damned convincing."

Laura, head erect as though staring without eyes at the far wall, nodded. "I'll help, Rai. But when this is over, I want to leave here. I never want to feel this—vulnerable—again."

"But this is my home, Laura. Surely a few months a year?"

"Not a few weeks, not a few hours. I'm not welcome here!"

"My work is here."

"There must be other places, other work!" She was clutching at his arm now, white parentheses of strain framing her mouth, her nostrils pinched, mouth trembling. Laura Dunning did not need eyes to register desperation.

Rai took her hand and said, slowly, "Well, there's always a teaching slot at Highlands if I want it. Las Vegas."

"Even Nevada," Laura said. "Anywhere."

"Las Vegas, New Mexico," Rai corrected her. "I'm like a lawyer; I have to learn the rules in my area and practice there."

Laura relaxed slightly, folded her hands, sighed. "I don't suppose there'd be a job for Val?"

Val had been studying patterns in the rough planks of the table, but now her head snapped around. Softly: "You can't be serious, just taking that for granted. And when you feel secure enough with Rai, you'll be asking why I don't take a hike. And I would, too. Only I should be taking it now." She whispered, "Maybe I will."

Rai saw the great soulful eyes brimming with tears, the slender shoulders held erect though shaking in some internal fight for control. Val wiped her eyes angrily, refused to look at him as he said, "Laura wouldn't do that."

"You know I wouldn't," Laura said, turning to Val, profferring a hand that Val ignored. "I'm not rejecting you; I'm including you."

Proud, defiant, miserable: "Sure you are. You want to include me in your horizontal tango, too, I suppose. You want it all, don't you?"

"If you mean I want to love you both—yes." She found Rai's hand again on her right, Val's on her left. "I don't care if it includes sex pairings or, or treblings, or not; maybe I should, but I don't. Let me hear you tell me why that's wrong."

Val opened her mouth, looked at Rai, found no help there. She managed only, "I don't have an answer for that. But I'm not ready to accept it—maybe I never would be." As her anger segued into remorse, Val essayed a smile that did not quite succeed.

"Isn't anybody going to ask my opinion?" Rai vented his *huh-huh* laugh, brushing crumbs from his shirt. "Not that I have one that's coherent. I've been shot, warned by cops in two counties, zonked by alkaloids, cross-examined by old men, and offered like a bowl of piñon nuts between Anglo women. If and when I return to normal, maybe I'll *have* an opinion."

Val had begun to chuckle before Rai's list of intrusions was complete. Sniffling from a previous emotion, laughing through its antidote, she made her peace with Laura by hugs and apology. "That one will bear

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watching, Montezuma," she said to Rai as she found her pallet. "People tend to forget you're there when Laura's onstage."

"I have that from an expert," he said to Laura, whose response was a penitent smile and nod. He turned out the light and led Laura to the pallets. Her mouth was warm and pliant, and there was no more talk of guilt in their earnest communion. Their physical sharing could have been no more full had they known it would be their last.

They were awakened on Monday morning by repeated knocks, then the cheerful diffident call of Jeff Simes, *resplendent in a smock so white it* dazzled. A state van, one of the silent white electrics that seemed all doors, shadowed the 'dobe's entrance.

Rai let him in, introduced him between yawns and hid his amusement at Simes's reaction to his guests. He pulled on his boots as he cautioned Simes to 'do' the women of San Saba first.

"Give me some credit," Simes grunted, and drove the van to the spot indicated by Rai. Simes had collated much on short notice: two assistants of each gender, all fluent in Spanish; and automated specimen equipment that ranged from centrifuges to microchromatography and automated printouts. Simes shooed Rai off, perceiving that the pueblo women hung back until Rai left the immediate area.

From his doorway, Rai stared across the square with Val and slurped her coffee. Laura had fallen asleep again, her snores soft in the cool interior "In-bloody-credible," Val said, studying the queue of silver-bedecked dowagers, sleek-haired young women, little girls. A few began to issue from the other side of the van, holding what appeared to be tickets the color of a tangerine. "He's running 'em through like crap through a tin horn."

He completed a silent calculation. "About two a minute. They'll be ready for the men before noon. And the clowns will be ready for anyone trying to split."

Several men in striking costumes, some naked from the waist and all wearing masks with the smiles of a Sheriff Hightower, cavorted on flat *rooftops around the pueblo. Rai* explained that the feathers, masks, and the gray, black, and green body paint were more powerful symbols in San Saba than was a copper-buttoned blue uniform in an Anglo city. More of the clown society men patrolled outside the pueblo walls. They might walk on their hands and mimic the solemn, but they carried blunt staves as well. No San Saban would leave the perimeter without a bright ticket signifying passage through the purifying Anglo van. Passage to the pueblo would be strictly one-way until the tally was complete.

"Which reminds me," Rai said. "A few shepherds and husbandry people, mostly kids, are usually out on a given night. They're to be relieved by others who've had the tests, and I want to make sure about—some."

He might have simply specified: Hospah Ramirez. Laura thought the boy unsullied; and he had seemed troubled enough by the tragedy near

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Crownpoint. But Hospah was also the last San Saban alive who had rubbed shoulders with Ziu Tiamunyi; Encino Mangas; Chuzo Dinay; and others. All ogres. Or janissaries of the Ogre Katcina? Rai's puebleño skin crawled, defying the Anglo training inside; he would not relax until the Ramirez boy held an orange ticket. The boy's sister, Zana, was in the queue with her mother—and San Saba mothers were the standard arbiters of child behavior.

They had an early lunch, after which Rai got in line with the men for his own tests, and for the sake of appearances. He lingered with Simes in the van. Yes, a few pathological conditions had turned up: diabetic symptoms, cystitis, anemia, worms. With the males, a slightly different pattern was emerging. Yes, some protein in the urine, especially of the youths.

Rai's heart thudded against his windpipe until Simes added, "But certain types of protein are common enough. We've added a reagent strip for your goddam bug juice, Rai. I feel like an idiot, but I did it. And no, it's uniformly negative for chondroprotein."

Rai thanked him, took his ticket, returned to the 'dobe. He passed the news to Val, presuming that Laura was 'listening.' Why did he not mind that Laura was privy to some of his most private thoughts? In any case, he realized, he didn't mind—so long as they weren't playing cards for money.

As the sun moved well past the meridian, several young people passed Clown Society checkpoints waving orange chits. They left for garden plots, sheep pens, ocher deposits; relieving those who had spent the morning, or the previous night, at some task. Most went afoot. Two young men sped away on electroped bikes, the two-wheelers nearly silent but for the jouncing springs. Halogen batteries made electropeds costly for initial purchase, and the appalling injury index in the old days of engine-driven cycles had prompted the elders to forbid powered cycles to the underaged. San Saba was far from democratic, but it fostered unified action.

Presently, Rai stiffened as he spied two small figures from his single deepset window to the outside world. He ambled into the square; watched as Hospah Ramirez trudged to his home. The dog, Billichay, lay obedient in the shade, awaiting whatever his godlet might command. For a fleeting moment Rai considered Billichay in a new light, watched critically as the sheepdog scrambled up to greet Hospah and the treats he held aloft. As Hospah walked toward the white van, Billichay swallowed a morsel, darted to salute a dry old watering trough, capered in the dust, hurried to tease at Hospah's ankle. No, it was hardly the behavior of a mature evil, Rai judged; but who could tell what a urine specimen from Billichay might reveal?

It took the boy a half-hour to queue through the line. Rai released a long-pent breath as Hospah Ramirez emerged, stuffing an orange chit into a pocket. Rai saw him linger with other children, cadge part of a soft drink, maunder back toward distant sheep

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pens with Billichay. Then he called Simes discreetly from the Mitt's radiophone.

Jeff Simes was harried from a long day, his temper frayed at the edges as he replied to The Question. Ramirez? No, dammit, the boy was depressingly normal. Diagnostic tests on a goddamn dog were, goddammit, for a goddamn veterinarian and now, et cetera, would Rai Koshare please get the et cetera off the line?

Rai made the best apology available: he offered to buy drinks for the crew in Crownpoint that evening. State expense accounts did not blot up ethyl alcohol; Simes relented a millimeter, agreed, and went back to his printouts.

Inside the 'dobe, Rai hugged Laura and Val to him as he beamed that a celebration was in order. Though a few pueblenos needed some social pressure to file through the entire van, each of them finally emerged with an orange ticket. It seemed that the nightmare was fading, an ancient evil driven out. Crownpoint's BarBQ Heaven was the nearest approach to formal dining in thirty klicks: would the ladies do him the honor?

His question was rhetorical in the most trivial sense. They primped in fresh clothes, borrowed from Rai's hoard of heavy silver-and-turquoise adornment. Laura's shining platinum hair against the dull luster of raw silver made a breathtaking monochrome. Joking, planning their evening, they rode out from San Saba pausing only to show Rai's orange talisman. The two Anglos were not, strictly speaking, persons; did not count.

Once Rai tooted the horn and waved to a distant boy, almost certainly Hospah Ramirez, whose dog nipped at determined stragglers in the small herd of sheep that moved toward fresh pasturage. Laura's chin came up, a thoughtful crease corrugated her forehead. Then she put the wisp of suspicion from her mind. From earlier contact, she knew that several ogres would not willingly convene in one small body. With her reliance on telepathic knowledge, Laura had never developed a strong tendency to consider alternatives. It must have been nerves, she decided, and kept her silence as the Mitsubishi carried her out of range of the deadly Oshara minds.

Pasturage was never overabundant for sheep across most of the Four Corners region. Cattle ranchers fenced and railed against the browsing habits of sheep, which damage grass instead of cropping it neatly. Shepherds had learned long before to keep track of the odd sinkhole, the occasional gullywash, that might offer green forage in unlikely spots one year out of five.

The elder Ramirez agreed, for a price, to let his son accommodate the needs of the Dinay family since the death of Chuzo. Spray-painted black letters 'R' and 'D' showed stark on the broad backs of sheep that mingled, jostled, forced new dominance patterns as they sought to become one

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flock. Two of the Dinay ewes touched noses as the pickup droned away, lingered thus.

Execrable planning, complained the user that had recently been Hatchi Leon. He still fumed over his astonishment and shame when the archaeologist appeared at the wreck after they had reported him dead. *And almost as bad to place four of us in female hosts.* The Ramirez rams were importunate.

The reply was no less paranoid than it had been in Naka Flores: *Dinay planned well enough in hiding the antenna modules. I shall forget none of this when I report to the fleet.*

Patience! First we must contact our homeworld; and before that we must take fresh human hosts.

Then, *That accursed dog again,* as Billichay raced toward them, his canine awareness increasingly disturbed at the unsheeplike maneuverings of his new charges. They smelled subtly different; they were not easily frightened; and something in their eyes said more of masters than of sheep.

The boy turned to watch Billichay at work, and another of the two dozen 'D' emblazoned sheep shouldered next to a ram of the same flock. Noses touched. *You are certain the boy used those words to his cousin? We must not move too soon,* cautioned the user who had been Chuzo Dinay.

The user of Carson Kimbeto: *I have faced exposure recently and am more wary than you, and I am certain that the white truck has lulled the humans. The older youth asked if Hospah, like himself, had done with giving of his body to Anglo magic. Hospah answered that all people had given blood, excrement smears, sputum and urine, and that the elders had promised that no more purification rites need intrude upon San Saba.*

If only we could interrogate, mused the ex-Chuzo. Physical usurpation was not delicate enough to tap the thoughts of a host before its mind was destroyed.

If all agree, we can take one host tonight and make reconnaissance. I believe you are correct in suggesting our most suspicious member for that task. There was something akin to cynical pleasure in this observation from a user who had nearly died within the Kimbeto boy.

Let us argue toward that end, then. And let us all make the small shepherd work, as planned. He must be worn down in relays. Damn that dog, he finished, as Billichay circled toward them.

They turned away, seeking others with the telltale spot which, before dawn on Saturday, Chuzo Dinay had scraped bare of fleece just ahead of the left ear. In time the users would have come to know one another's ruminant bodies just as they did with humans. Yet they did not intend to stay hidden within this flock for any extended time. Their confidence in planning and execution had been sorely tested when Rai Koshare, apparently resurrected, strode from the Cessna near Crownpoint virtually under the noses of the sinister little flock. The shame of the

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Oshara assailants became complete when the once-Mateo Betan, staring from the sheep pen on Sunday afternoon, identified two women in the passing Mitt as light haired, probably the Anglos. Using sheep eyes at that distance he could not be certain. Now the red Mitt had passed again, now the satin sheen of Laura's mane was unmistakeable; and now the users were certain, angry, restless for the freedom and violence which new human bodies would provide.

Objections, suspicions, stratagems passed among the users as they moved into a more cohesive fleecy group in gathering dusk. They reached general agreement that the Ramirez boy must be taken now, but no consensus on the immediate action against Koshare and his Anglos.

They felt sure that the archaeologist was behind the specimen program; could not know Val had observed the rescue of one of their number; felt certain nonetheless that their future safety depended on the elimination of the three humans who they had twice attacked. They had not yet decided how it must be done; but soon, soon...

Several kilometers to the northwest of the flock lay a shallow fork of Chaco Wash. In a hollow near one of its tributary arroyos was a hogan, occupied only when seasonal seepage encouraged a bit of forage there for sheep. This year it would be of scant interest to shepherds, and so its centuries-old midden heap was an ideal repository for the beacon equipment of the users. Cable, antenna modules, water jugs, jerked meat in an *olla;* all had been quickly dumped from the stolen Datsun during that frenzied night of destruction, then covered with older trash. It would be safe until the users recruited fresh children.

The recruitment of Hospah Ramirez would have to be without external damage to the small body. It was a problem, but one with several solutions. The simplest way was to assure that the boy was bone weary, and to interfere with the flock's progress to pasturage until the small shepherd elected to stop on the open range for the night. There would be choices in terrain, hollows protected from chill winds that swept from distant blue-gray peaks even on summer nights, bearing scent of cedar, desert blooms, perhaps of coyote. It would be then that Hospah Ramirez, lacking firewood, would ease into a group of his charges, curling up between them for warmth. He would fall asleep while Billichay guarded the perimeter—and while one more ewe settled against the boy. And under the cover of night, there would be more than enough time for a warm sentient wave to glide through fleece to naked human skin.

The simple solution was executed flawlessly. Sequestered in the lee of a hillock, the flock of Hospah Ramirez settled for the night. Frequently Billichay trotted to investigate the deliberate straying of Dinay sheep. And once, long after midnight, the child leaped to his feet to scream under cold bright stars as he felt the

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deadly progress of a Thing within him; stealthy, satanic, horrifying and implacable. Hospah took three steps and fell, first blind, then deaf.

Billichay raced to his master across the backs of sheep as a child skips over stones in a brook, then stood whining for orders. After several minutes the child's limbs began to jerk, flex; the small voice rasped a command as the user grew adept at control. But Billichay would have heeded that command in any case. Growling, whining, the dog backed away and sped to the other edge of the flock, there to remain for the night. His small human god bore a faint new scent, sour as forgotten cheese, oddly like the troublesome Dinay sheep. It would be easier to perform canine duties while maintaining a respectful distance from this boy who was, Billichay sensed, no longer Hospah Ramirez.

Rai Koshare waited for the vigas to quit spinning overhead in his room, refused the mug of coffee as he struggled to sit up. "Nope, tomato juice," he whispered, and noted without pleasure that the women were faring better than he. The clink of the juice container was a clash of cymbals; its fluid gurgle was God's own millrace in his head. He squinted at the slanting trapezoid of light from a window and warned, "Don't tell me it's noon."

"We won't," Laura smiled, and sat beside him to rub his head. "It's afternoon. By the way: how does one snag?"

Rai heard Val's merry laugh from the dining area but did not understand the question. Laura said, "All the way back from Crownpoint you kept telling us that drinking doesn't make you dance better or snag easier, it just makes you a drunken Indian."

He began a *huh-huh* that hurt, then explained that it was an old slogan at Haskell College. "Pity I didn't take it to heart. I suppose I outraged everybody," he grumbled, sipping juice.

Laura denied it, luring him into her variation on Dorothy Parker's 'You Were Perfectly Fine'—until he realized he could not have married both Laura and Val without the mandatory delay.

"You takum advantage of poor injun," he rumbled the stereotype, glowering over his tomato juice. Then, "Nice scalp," he added, and reached for her as she fled squealing.

In an hour he was mending nicely, able to take the odor of fried food without retching. He made a call to Gallup, learned that Simes had delegated a Navajo medic to begin negotiations with old Chames Tesuque for treatment of a few San Saba ailments. "You tell a tangled tale when you've hoisted a few," Simes informed him, enjoying the memory of their Crownpoint evening. "But beyond those anomalies in the boys' bodies there's only one coincidence that gets me: why'd they go on such a rampage right after you collected those first specimens? Wish I could get over the feeling that I set the whole tragedy all in motion."

Rai sensed his friend's willingness to shoulder guilt, reminded him that the

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specimens were their mutual secret, and rang off. He sat in the cab until the heat drove him into the 'dobe, thinking. Their secret was hardly secure if someone else—Tesuque, for example—had monitored their open radio channel.

But Chamas Tesuque had been a crucial force on Rai's side. No one else in San Saba had sophisticated communications equipment, he reckoned. Or did they? If Chuzo Dinay's friends kept such equipment, they would keep it hidden; and *that* would explain a few things, not all of it very settling to a foggy mind or a fluttery stomach. Rai endorsed Laura's error of the previous evening: he let an awesome possibility go undiscussed.

He felt better after his siesta but nagged himself with memories of the San Saba midden. He had played there himself, years before; had known as a child that some areas were forbidden him by the larger boys. Chuzo, and perhaps others of his ilk, had been there days ago for some unguessable purpose. Maybe a purpose could be guessed by a bit of site investigation. He was, after all, an archaeologist . . .

" . . . Think I'll mope around in the pueblo midden," he said casually, with a strong silent broadcast following his words.

Laura must have caught the warning. She said, "If you're not worried, I'm not," and turned back to shelling corn.

Val put down her book. "Why don't we tag along?"

He needed a stroll alone, Rai said, and Laura chimed in; she'd rather he be bored with himself, for heaven's sake, than with friends.

"You two don't fool me for a second," Val replied, eyes narrowing. "Here it is right up front: the last thing about this place to scare me would be boredom, Rai. I just like to know you're close."

"Then keep the car keys. You know where the midden is; if you get too nervous, drive out and honk."

Val took the keys, tossed them on the table, followed Rai to the door. "Dinner in a couple of hours," she predicted. Little did she suspect that she would miss the mark widely.

Rai grinned, adjusted his broad hat, felt for his glasses in a shirt pocket, nodded. Long afterward he would recall the innocent irony of, "You Anglos try and keep out of trouble."

The user of Hospah Ramirez was no more pleased in his new host than he had been in a sheep; suspicion will always find the dark rationale it seeks. He had walked over ten kilometers under a blazing sun, protected by his tattered poncho, hidden by the uneven terrain, before he reached the San Saba midden. It was best not to be seen, but he could always insist that the flock—a two hour walk away near the old hogan under Billichay's supervision—was really much nearer.

He skirted the source of childish dialogue from a spot in the midden, reached the dugout ungreeted, found the rifle he had come for. In a few

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days the pueblo would be back to its normal routine.

The user stood in utter silence, leaning against cool dry earth, and listened again to the prattle of five-year-olds. In all probability, he felt, the coming of the starship would bring an end to the strict necessity of taking these particular small hosts. But the user was thinking less of necessity than of pleasure. He had learned to delight in the consumption of innocents; wondered which of the tiny creatures beyond the next hummock might be next to feed his ravenous desires. Even ravishment of a human child by a fellow user brought him a secret satisfaction. In the next few days they could begin to recruit new children. It might take a week. Unnoticed, a runnel of saliva found its way to his chin.

He felt the rifle in his hands, the essential tool by which users could coerce adults, and again 'Hospah' gloated. There would also be pleasure when he, or one of his fellows, managed to find the Anglo woman alone. The rifle was required to enforce the user plan. The smaller woman might be a marginally acceptable host and, if not, her body would be left in the desert sooner rather than later.

Women held hostage to compel the man Koshare; the man supplying last essentials of beacon equipment; then all of them in deep unmarked graves. It was a tactic that appealed to the user as he thrust the little rifle under his poncho. The stock came to his shoulder, the muzzle down the leg of his denims nearly to the knee. He would walk stiffly for a distance en route back to the hogan, but the expedient worked. The user was scanning the distant pueblo, ready to move out from the occluding midden, when he saw the tall figure approaching from San Saba. He rejected his first impulse, left the rifle in his clothing instead of bringing it to bear on his enemy, melting again into the midden.

Rai Koshare heard the children playing, smiled at old reminiscence, then realized how little he remembered of the place. He walked nearer the voices and called to them. A child with the eyes of a Val Clarke poked his head from a dugout and Rai, squatting companionably, traded pleasantries. He turned the topic of the old playground to that of Chuzo Dinay's favorite place while the user, ten meters away, listened with growing alarm.

The damned archaeologist must not be underestimated; who knew what he might discover in the hideout, given time? He might search other middens. The user cudgeled his mind for traces left nearby. If only he could contact the others, this instant—but he alone enjoyed a human host. By the time they were ready to take the Anglo females, Koshare might be on their track. Time...

Then, as a child led Rai Koshare to the entrance to a burrow that might be damning, the user made his decision. The time was now, *now*! No matter that sundown was over an hour away; if the car and the women were unguarded, he could carry out the en-

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tire operation alone, in a single sweeping maneuver. It would not matter what the fool Koshare might find then: it would be too late. Koshare would depend on user promises, because he would have no choice. One had only to make that fact clear.

The user had but one intervening problem: approach to the Koshare 'dobe without answering questions about errant shepherds. He moved toward the pueblo at a stiff-legged trot.

Few San Sabas occupied the inner square at dinnertime, and none thought to look closely at the small ponchoed figure with the slight limp as it neared the Koshare 'dobe, peered into the red Mitsubishi.

In Rai's dining area, Laura brushed angrily at a crumb on the table. "Why must we fight like this, Val," she lamented. "It's almost as if you were trying to make me dislike you."

"Trying to make you face the facts," Val said, stirring at the soup. "Everybody has her own fuel, and you run on security. I expect you'll leave Rai when you find somebody else who makes you feel more secure—only security's a Shangri-La, it's a charming fiction."

"And you're a drab little cynic, jealous of Rai!" Laura bit her lip. "Now you've got me so upset I can't think. I didn't mean that just now."

"In anger veritas," Val said grimly, and heard the door hinge creak. "Come in, Rai, we're having a dandy time talking about you."

Laura dropped the bowl, squeaked in horror. "I wasn't thinking," she whispered, hands to her face.

Val turned, dropped the wooden spoon, elevated her hands as she stared into the muzzle of the little weapon. She tried to smile; it had to be a game, she thought. "Okay, little fella. I hope that thing isn't real."

Laura, breathlessly: "It's real. He's—one of them."

Val stared into the eyes of an ancient evil in a child's face. "Better give me that. Somebody three times your size will be walking through that door any min—"

"I know where Koshare is," said the small voice, its sibilation betraying a mind that was not comfortable with English. "He cannot help you." The muzzle shifted to steady on Laura's breast, but the eyes did not leave Val as he commanded, "Pencil and paper. *Now.*"

Val scuttled away, unwilling to shift her gaze from this not-child. She fumbled for her purse, returned and dumped its contents on the table. Her hands were shaking.

The user noticed the car keys as Val found a pen and her checkbook. "Those are car keys?"

Laura, suddenly aware of his intent: "No."

"Yes," Val admitted. "Why didn't you say you wanted the car?" Car theft had brought them enough trouble, she thought, but maybe he would take the damned car and go. But how could someone his size drive? Fragments of the truth occurred to her.

"*Cállate,* shut up," hissed the user.

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"Write, do not print, as I tell you."

She used the back of a check, and forced her hand to write as he commanded: *You can buy back our lives. Stay in San Saba and joke in public about your suspicions. Wait for orders.* She shoved the scrap toward him.

He left it there, stepped to one side, gestured toward the door."Understand that if you refuse one order, I must kill you."

"He wants to! My God, where is Rai?" Laura's self-control suffered from her awareness.

On command, Val took the keys, preceded Laura to the pickup a few steps from the door. The user was close behind, eyes roving, the rifle beneath the pancho but ready to swing up and fire. He vaulted into the cab behind Laura. Val started the engine, wondering if she should try suddenly braking as they left the square.

As if outguessing her, the user jabbed the gun muzzle into Laura's ribs, the weapon held across his lap. "Sit up, arms on the seat back," he said to the cowering Laura. Laura did so. "Drive slowly, to the west."

Very slowly the Mitt rolled from the square. They passed two men who did not glance toward them at all. Val shifted into second gear, kept it there. She would use fuel much faster that way, she reasoned as the old diesel wheezed and clattered. She drove along ruts that led past the midden, suddenly hopeful. If that was his destination—.

"Circle wide *a la derecha,* to the right," he ordered. Val saw that she would be forced far from the midden so, as she complied, she took a terrible chance. When the Mitt jounced across ruts, her forearm brushed the horn.

"I couldn't help it," she lied, glancing into the widened, inhuman stare of the user who slid down further, his head below the window level.

He did not pull the trigger. Val searched the rearview; knew she couldn't expect such an ineffectual bleat to alert Rai; continued her slow detour. She saw no one, did not expect aid now. The user eased his head up, gave a fresh command, glanced from Laura to the landscape and back again. With a last despairing inspiration, Val slid her left foot onto the brake pedal without lessening pressure on the accelerator. Three brief taps, three longer ones, three brief taps again. Then repeated again and again as the safe stolid mass of San Saba dwindled in her rearview. The small decelerations were not noticeable on that terrain, but her slow progress was. Val knew that her captor had all the caution and intelligence of an adult as he insisted that she upshift. The pueblo faded from view.

At length Val mustered the courage to ask it: "So how did you pass the specimen tests, you little gob of snot?"

No vocal answer but, "He has answers," Laura managed to say without clarifying her meaning to the user. The answers were an overlay on a roiling mass of suspicions within the small demon.

Val continued as if talking to

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herself. She wondered aloud how many of them existed; if any had been killed; where they had come from; what they wanted.

To Laura some of the answers were gibberish, some vague; but simple concepts were clear enough. Hardly twenty minutes after they turned northward, Val obediently urged the pickup along an arroyo and saw her first coyote, all skin and bones and wariness, loping out of sight. Finally she reached a turn to the east and then found herself emerging into a broad sere hollow.

Val saw the penned sheep, dirty buff in the darker shade of a tumbledown shed of corrugated metal, before she noticed the earth-tinted hogan nearby. At the user's command she drove behind the shed, killed the engine, waited for the user to exit and trembled with anticipation of his slightest mistake.

She was disappointed as Laura, terrified that Val might provoke a fusillade, followed meekly. Val followed too, noticing with pity that Laura had wet the seat beneath her. Val left the passenger door ajar. One more forlorn hope: maybe the cab light would run the battery down. In false bravado, then, recalling the note she had written:"You give Rai Koshare an order and he's going to wring your frigging neck for you."

Perhaps the user's confidence, feeding on success, had grown. "But he would not wring yours," he said, the rifle muzzle his goad toward the hogan

"You little shit, you think I'll follow orders when that rifle's not pointed at me?"

A steady look, a slow knowing nod.

It was Laura who answered. "You will be their puppet," she said, aghast. Val thought back to the moment when she saw a trapped user creep from one human body to another, and then she knew how she was to be used. Only Laura's dependence on another's courage kept Val from screaming.

The hideout seemed little more than a children's excavation to Rai, except for the size of it and the deep recesses with discarded plastic sheeting. His questing fingertips found faint sensations of the Oshara ogres on the sheeting; some of it a generation old, some as fresh as the fleeting moment. Gooseflesh crept along his forearms as he concluded that at least one of them, in the past few hours, had stood where he now stood. To some extent it was fear that drove Rai from the earthen pit into sunlight.

He heard the cold-engine rumble of the distant pickup, waved as it passed; but standing in a small depression he knew he could not be seen. Val drove steadily, rigidly, staring straight ahead instead of searching for him. What the devil was she up to, a joyride? He scrambled along the path leading from the midden, stumbled, heard the tenor call of the horn, trotted into the open to see the pickup circling wide.

Sunlight streamed through the cab and Rai, whose long distance vision was average, saw Laura's arms

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stretched across the seat back. But Laura normally braced herself against the dash padding, he knew; and then he saw the wink of brake lights, a repetitive SOS, and felt certain that Val drove under duress. His hat and glasses fell into the dust as he sprinted for San Saba, thinking of Tesuque's radiophone.

Even as he ran into the square he knew the radiophone could be monitored from inside the Mitt. He could not risk alerting an enemy by a call for help, could not spare the time. He raced past an electroped, then turned back and ripped its recharging cord away. *The Mitt had been slow enough* that he might catch up. The whine of the motor rose in pitch as the little two wheeler carried Rai from San Saba.

The pickup was out of sight. Rai's pace tossed him from bump to bump as he squinted into the sun, catching a faint trace of dust on the horizon. Now and then he spied a fresh treadmark in a patch of windblown sand, and when sunlight glinted from a moving object four klicks away to his right, he saw that it trailed a dust-trace. It had to be the Mitt, now traveling faster than he. Rai gritted against dust in his teeth and followed.

Speeding northward, he knew that he had been outdistanced. At every rise in the terrain, he thought, he might suddenly ride in view of the pickup, and then he would lose the advantage of surprise. If only he had stopped to apprise old Tesuque! He slowed as he neared an eroded butte, rode near its top, halted the 'ped to listen. Nothing but windsong and his beating heart; but there at the bottom of the slope, something moved.

He rolled the vehicle downslope and routed a single gray opportunist at its gory work. The great vulture hopped a few times, ungainly with its full craw, then flapped into the air leaving the carcass to the interloper and the ants. Rai saw that it had been a Dinay ewe; judged it had died within the past day. Little Hospah had run into trouble, he decided, though he could not guess how the ewe had died. Rai crossed the dry hollow, turned northward again.

For a time he saw nothing to promote optimism until he found fresh treadmarks. One good thing about a dying sun was the long shadow it threw; he sped as fast as he dared, a few meters east of the tracks, catching occasional glimpses of treadmark shadow. The Mitt had run almost arrow-straight toward a wash that crossed from the east.

He lost the trail as he negotiated the shallow Chaco Wash, continued for a half-kilometer, stopped in frustration. He had just missed the treadmarks, he was deciding, and scanned northward before proceeding in that direction. It was then that he heard the faint rattle of three shots, as fast as a semiautomatic weapon could fire. They had come from upcountry behind him, the reports channeled by the slope of Chaco Wash.

At another time the inside of the hogan might have fascinated Val. An antique kerosene lantern hung on a

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wooden peg; a rusted bucksaw shared a corner with a pile of ocotillo firewood. The user motioned his captives to one side in the gloom, stirring dust that hinted of leather and smoke of another time. He wrestled a loop of heavy cordage from pegs that helped form a low-slung pallet platform. He ordered the tall eyeless woman to turn around; approached her.

Val, acidly: "Why tie her up? You can see she's blind."

"She might wander. If she does, there are deep arroyos very near," he said for Laura's benefit. He quickly trussed Laura's hands. Val stared pointedly at the bucksaw, then let her gaze sweep the rest of the place. She knew that Laura was preternaturally acute in memorizing a spatial arrangement, using borrowed vision.

Never at her best under stress, Laura remained as calm as could be hoped. Her breathing became more rapid and shallow as she knelt, permitted her feet to be tied. The user glanced at Laura's face in satisfaction, then used the rifle to prod Val toward the low arch of the doorway.

Most of the sheep had been penned but of course there had been no need to pen the half-dozen 'D' marked user animals. Billichay skulked around them, left to fight any stray coyote and as living explanation to anyone who might have stumbled on the flock. The user of Hospah Ramirez herded Val Clarke to the group, bade her sit, then commenced a rapid-fire monologue which contained a smattering of Spanish.

Val's confusion became an icy trickle in her veins as the sheep formed a mixed-sex ring, noses touching. The rifle held under one arm, 'Hospah' knelt, inserted a hand into the focal area without taking his gaze from his captive.

The dog slid on his belly toward the strange little Anglo, finally thrust his muzzle into her lap. Val jerked around, saw frank terror and pleading in the honest eyes as the dog prepared to run, then offered her palm. Billichay wagged his tail and caressed the hand with his tongue. When one's personal god has become a demon, even a dog may seek new alliance. Val scratched the burr-encrusted head, keeping the hogan barely in view at the edge of her vision. Then she released a tiny smile before erasing its trace; a flicker of silver moved at the hogan before disappearing behind it. Laura had loosened her bonds.

Billichay lifted his head; some clumsy creature was moving near the hogan and as always, Billichay did his duty. His sharp bark of alarm gave Laura away.

The user raised the rifle, sprang back, instantly saw Laura as he followed the gaze of Billichay. Laura moved upslope as adroitly as possible using the vision of Val a hundred meters away. When the rifle swung toward Laura, Val leaped into the field of fire.

Billichay knew the firestick could kill, hated its earsplitting report, concluded that it was to be used against his newfound friend. He launched himself

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at the figure that had once been Hospah Ramirez. But Billichay was too well-trained and too affectionate: he could not rip the arm of a small boy, though he held it in his jaws.

Val took a step toward the melee, found herself smashed to the ground by blunt curled horns, swung hard to catch one ram across the nose as she struggled to her knees. The dog rolled to one side, saw the rifle swing toward him, tried the best conciliatory gesture he knew: he sat up and begged.

The blast, three rounds at close range, caught Billichay full in the chest. He flew backward, a leaf on a winter wind, and Val screamed. "Run, Laura; *run*!"

The user with his rifle had the power and the voice trappings of leadership. Val knew the gist of his piping commands when the sinister group of sheep backed away and turned toward Laura at rolling ungainly lopes. The user's face was devoid of any sympathy for the valiant canine heart he had burst. Internalizing this fact, Val lost any hope she may have nurtured.

"Drive the car to the woman," he ordered sharply.

Val made her decision then. She was going to die: very well, she would take this small ghoul with her, perhaps at top speed over the lip of a nearby arroyo. Valerie Clarke straightened her slender body and marched toward the Mitsubishi, now in deep shadow as the sun touched the horizon.

The passenger door was still open. She grasped its handle, waited for her captor to precede her. He shook his head, waved her forward with the rifle, risked a glance toward the slopes. For a blind woman, the Anglo was making good time. He had not guessed that Laura was using the vision of the user sheep as they neared.

Val saw the rifle barrel swing within the arc of the door's travel and swung the door as hard as she could. The user was not quite quick enough; he clutched the weapon as the door, with Val's forty kilos behind it, clanged hard on gunmetal.

The door could not possibly have latched. The user planted a foot in Val's midriff as she fell against him, kicked as he levered the rifle like a pry bar. Val bent double. The door flew open again to catch her flush against the jaw, sending her sprawling.

The user was aware now that he could no longer depend on her fear, could compel her only by brute force, and made a snap decision. He aimed the rifle at her head, felt the trigger.

And paused, staring. The barrel of the weapon was bent halfway down its length by Val's desperate lunge with the door. He knew it could be dangerous to fire a gun with a kinked barrel and, in any case, the Anglo woman lay unconscious at his feet. They could use her later if she were immobilized. He dragged her five meters to a cornerpost of the sheep pen, watched by other woolly captives inside, and pried at baling wire that held two shed panels together. It was rusty stuff and it cut savagely into the woman's wrists as he twisted it tightly before attaching it to the post. It would serve; could not

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be chewed or easily cut. He left her face down, his hands sticky with her blood, and sprinted toward the scatter of sheep that quartered a nearby slope. He took the rifle; it might still be useful as a threat or a bludgeon.

Rai Koshare cursed as he saw his shadow lengthen ahead of him, fade imperceptibly into the sandstone of Chaco Wash. He had little better reason than blind hope to suggest that he moved toward Laura and Val. The wash took a bend southward, then east again, and he paused at a juncture of tributary gullies. To the right was nothing but breeze in his face. To the left, nothing, then something: the low recurrent *baa* of sheep. He chose the left channel, urged his little vehicle on.

Minutes later he saw the arroyo split into branches, two broad reaches and several steep defiles opening into a hollow at the foot of a butte, its top salmon-pink in the sunset. He saw sheep above him, light patches against the darker slope near a precipitous defile, and then saw the small figure trotting toward them. Nearby were the penned stock, milling uncertainly away from the smell of blood and complaining in the process. Rai could not see the pickup behind the stock shed, but spied the hogan. Perhaps the shepherd had seen the Mitt. He stopped the electroped and shouted for attention.

The small figure froze, jerked around, stared below him. He identified Rai more by his clothing and demeanor than anything else, knew that if Rai had not seen the hidden pickup he might be persuaded to retrace his path. It might be possible for 'Hospah' to excuse himself long enough to smash the little Anglo's head before she could call an alarm. He might even get behind the archaeologist to club him. He traded glances with the nearest ram, called softly that they must find the blind woman who had so quickly found a crevice to hide her. He ran back down the slope; he did not want the man to advance far enough to spot the pickup.

Rai recognized the face of Hospah Ramirez and relaxed. Hospah carried an orange chit in his pocket, even if that little rifle had probably been borrowed from Dinay's friends. Had Hospah seen a pickup truck or heard anyone else in the past half-hour?

A puebleño shrug, more adult than childlike: not up this fork of the wash, the user lied. However, from the butte he had seen a car to the west, hurrying northward.

Rai wrenched the handlebars around, tears of rage and frustration in his eyes, determined to continue the chase until something broke. A new thought made him pause. The boy might even now be stalked by a loathsome presence, somewhere on the buttes. "Hospah, you've already lost a ewe south of here. You knew that, didn't you?"

A cautious affirmative.

Rai wondered how to warn the boy without unduly frightening him; looked away; and saw the corpse of

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Billichay spread in its own blood. He moved from the 'ped to the dog, looked back at the user and the rifle he carried. The weapon had been freshly battered. Rai's glance was a silent request for clarification.

"I shot him," the user admitted, and added with inspiration, "He was killing sheep."

Rai shook his head in commiseration; those had been the shots that led him on this fruitless sidetrack. He reached out to run a hand along the angle in the rifle barrel, and the user thought it prudent to let him. Rai grimaced, envisioning the plight of a boy who must kill his traitorous dog, venting his sorrowful anger by wrecking the weapon he had employed.

"I understand," said Rai, not understanding at all as he withdrew his hand. At that instant, the delayed awareness of his fingers flooded Rai Koshare: The Oshara evil lay thick as grease on the rifle.

Rai's eyes took on a terrible brilliance in the dusk. To the user, he seemed to loom three meters tall as Rai took a step forward, rumbling, "Where are my friends, you dog's piss?"

The user took a step back. "You sound crazy as an Anglo," he blustered, then swung viciously with the gunbarrel. Rai ducked under it and then the user was scrabbling toward the slopes, looking for aid. One other user, in the guise of a ewe, was near enough to help. It opted for discretion, nestling unseen into sandstone detritus.

The user could no longer call on Billichay for help. There was a hatchet in the midden cache, and the user fled toward it. He saw that there would not be time to paw through the debris, turned atop the old mound and faced a transformed Raimondo Koshare who had now taken his own knife from his pocket.

"I know you," Rai snarled. "I don't know which one you are, but I know you. *Where are the Anglo women*?"

The user waited until his nemesis was only two paces away before he snatched the rifle to his shoulder. With any luck at all, it still might kill. He pulled the trigger.

It was a painless kill, instantaneous and unerring. A hissing metallic report accompanied the ejection of the receiver mechanism as the slug jammed halfway down the barrel. The receiver, a tool steel projectile the length of a finger, flew backward and the head of the user snapped away from its impact. Rai had thrown one hand before his face, saw the body flung spread-eagled like trash onto the midden. Rai leaped to grasp the rifle as it clattered on stone. Then he saw it was ruined, stood over the body of his enemy which thrashed as an unseen controller found his helm destroyed. Rai turned away suddenly with an aching sadness for Hospah Ramirez.

From his low promontory on the midden, Rai peered through the gathering dusk past the alarmed sheep in their pen, and saw the hood of the Mitt. Laura and Val could not be far

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away! He yelled their names.

Val heard his shouts, but she needed time to think beyond the cobwebs in her mind and the pain at her wrists. Rai was already darting from the empty hogan, calling brokenly, when he heard her, "Help me! Is it Rai? Oh please God, Rai?"

He fell on his knees beside her, straining to see at close range without his glasses in the waning light. She whimpered as he turned the wire in the wrong direction, tried to help, and felt the rusty bonds loosen. He hugged her, kissed the unprotesting mouth quickly as he pulled her to her feet.

Val steadied herself, rubbed her bloody wrists, stammering. "The loose sheep, they're after Laura. The Oshera people must be inside, Rai." She staggered into the open, finding her bearings, flinging an arm toward the butte. "They're searching for her up there but watch out; they attacked me."

Rai had started for the butte but wheeled with sudden recall, ripping the little canister from his denims. "That's a gas projector," he said, and flicked it experimentally. A thin stream, not of gas but of a volatile liquid, spurted five meters downwind. It seemed a useless toy. He shrugged, laid it in Val's hand. "It may help," he said, and started on a dead run toward the butte, its sides wrinkled with black crevices as darkness gathered at its edges.

They both heard Laura scream, a dopplered "Raaaalll," from somewhere above them. He lifted his deep voice as he ran, and bayed once more for his lost love.

For a brief moment Laura had huddled behind an outcrop that was streamlined by age-old winds, as she strived to make use of the users. The color vision of sheep, she found, was next to nonexistent. They scuffled on loose rock, not so sure-footed as true sheep but infinitely more sure in their purpose. Her mental vision cleared as a ram snuffled the air nearby, scanned her outcrop, turned away. The approaching night brought her a contrast of grays against black on the slope. She hurried toward the deepest black, then caught a clear image of herself as a Dinay ewe confronted her across the stygian shadow. It baaed three times sharply, flat ugly tones, and Laura knew that she must flee again even as she heard what seemed to be a familiar voice on the wind.

The ewe looked away and Laura's heart leaped. She 'saw' the user far below, turning back downslope. Someone stood near the hogan, foreshortened by terrain, but sheep vision did not permit a better view. Since the user was approaching him with apparent lack of concern she thought the newcomer must be another enemy and began to feel her way forward when no vision aided her. Finally she lay prone, blind, waiting. Once she heard a sharp report that could have been a gunshot, and feared that Val was dead.

For long minutes she lay where she was, hoping to be overlooked even in

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the open if she kept in shadow and utterly motionless. A ram, than a ewe, came near enough to glance past her. Then the first ram saw her clearly, gave the three-element alert, put his head down and charged.

Laura could not use the ram's impeded, head-down vision, dimly sensed the friendly blackness nearby, clawed toward it. Too late, her ears caught the subtle expansion of echo, and she reached back to cling with one arm at the lip of the precipice. The blackness was not a shadowed rock spur at all, but a vertical slice in the butte. Laura slid on the sharp decline, then whirled into nothingness. Her scream began as one name, blended into another, before she was broken on the tumble of sandstone fully fifteen meters below.

A Dinay ewe saw Rai first, turned aside from its upward course and tried, too clumsily for a sheep, to dodge past him. He caught it with a prodigious kick, forgetting the knife he held, and sent it crashing headfirst onto rocks far below. He watched it with fierce satisfaction until his eyes caught a gleam of silver-white in the narrow ravine, not far from the body of the ewe.

"She's down here," he cried to Val, who churned up the flank of the butte across the ravine from him. He pocketed the knife and launched his furious, sliding, leaping descent into the dark cleft.

Val saw the ram before it charged her, triggered the canister into its muzzle as she scrambled onto a chest-high boulder. The animal might have intended the three-element alarm call but never finished it, gasping, choking, writhing on its back. It managed only grunts as it lay twitching under the systemic assault of CS gas. Eyes wide with respect for the handful of power she wielded, Val palmed the little canister and moved upslope again. She knew that her own body was bait, but Val could exult: *this* bait held a formidable hook for the unwary.

A second ram saw her, gave the alarm, and trotted cannily near to await reinforcement. She registered fear, started downslope, then sprayed him as he suddenly ran toward her. He fell on the run, sliding toward her, and as Val turned to the onrushing ewe, it wisely veered off. Val pursued. The third ram approached the one she had first sprayed, incautiously placed its nose to that of the gasping victim for a brief exchange and then suddenly bounded away snorting. It was momentarily blind and Val caught it caroming off a boulder. She sprayed it unconscious. Now it was nearly dark but Val could see the remaining ewe on the slope had a choice of charging her, or retreating. The user chose a wary retreat. Val caught it trying to traverse the ravine and sprayed it from above. The ewe fell all the way.

Val returned to her foes on the slope, spraying the fleece on their heads, satisfied at last that they would not recover for some time. Val was no climber; she approached the vertical drop opposite the place where Rai had descended with great care. "I've got

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them all," she cried. She had failed to keep a close tally; did not see the last isolated user in a Dinay ewe, creeping away from the body of Hospah Ramirez. A glistening ruddy mass was slowly sinking into its fleece.

The drone of a mourning chant arose from the throat of Rai Koshare, somewhere below. He paused, calling hoarsely up to Val. "They've killed her, Valerie," he howled; "*Laura is dying*! They deserve the same," he cried, subsiding, and Val heard him speaking to Laura in a voice that was mastered barely enough for coherence.

A wave of weakness passed over Val, to be replaced by an awful resolution. She visited the nearby users one last time, choosing a hunk of sandstone the size of her head. She could not have said whether her tears were from chemical spray, desolation over the loss of Laura, or revulsion at the grisly executions that were her lot. When at last she dropped the stone it was at the behest of Rai, who was making his way out of the ravine's mouth with the body of Laura Dunning. The path downward was dangerous, truly no path at all, but Val cared very little for that.

The Mitt's radiophone brought San Juan County's only QRU craft from oil fields near Bloomfield in near record time, and with a full-fledged physician. He was much too late to preserve life in the body of Laura. There had been he said, no real hope from the first. Then the team sought the small corpse on the midden heap. This time there could be little doubt that the boy had died by accident; one eye socket was full of tool steel.

When the hovercraft lifted its pathetic burdens toward the north, its running lights a varicolored shadow play on the arroyo, Rai walked with Val to the pickup. He had done with crying, he told her, after sharing Laura's last moments. Val looked away sullenly. Men, she supposed, could compartmentalize their minds in little boxes—especially when one big box was such an intolerable burden.

The lone surviving Dinay ewe comprised the sorriest kind of vehicle for seven users. Physical control was chiefly performed by the ex-Chuzo, but he could not persuade his fellows to remain entirely in the animal's fleece. With great stealth—indeed, with desperate valor—the user found two crumpled sheep in the ravine, patiently endured the discomfort of CS gas traces, and in each case found the user more than ready to transfer to a mobile host. Full darkness had fallen before the 'ewe' found its way to the upper slope and, guided by odor, located each of Val Clarke's victims. The users sucked sustenance from the ewe's body while they exuded chitinous shells over those portions that lay within the fleece. Had anyone seen the animal stumbling toward the penned stock, he would have marveled at the patches of gleaming flexible carapace spotting her broad back.

The approach of the QRU with its dazzling spotlights had seemed to suggest military action. The ewe waddled at top speed down the deepest part of the wash and took the path of least

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resistance. Chaco Wash led to the Pueblo Bonito ruin where other shepherds often grazed their stock. It was a gamble, and the animals' physical resources would be heavily taxed. But like any other host, the animal was expendable.

Rai loaded the stolen electroped into the Mitt while the engine's clatter steadied to a hum. Val's questions to the not-Hospah, Rai said, had triggered answers which Laura had passed to him. "Without a host, they'd lose moisture and die like any other animal," he said. "And the entire lot of them were all in Hospah and the loose sheep. They had a horror of being left in a dead host on the desert," he said, pleased. "And I'd rather that happened, than go fooling around up there after them in the dark."

Val watched the headlights bob as the Mitt started back along Rai's route. "Laura, Laura; she never ceased to amaze me. Imagine spending your last moments like a spy with crucial information. Guts. It just makes me love her more," she sighed, blinking away tears.

"Thank you," Rai said, as if in loving parody of Laura's drawl.

"Unfunny," Val replied, and changed the subject. "Where are we going now?"

"Home, by way of Pueblo Bonito road," he said, and wrenched the wheel, avoiding a boulder.

Neither of them noticed the ewe which had stumbled forward, searching for cover, at the sound of the approaching Mitt. Since there was no adequate cover, the user dropped into a slight hollow to one side of the arroyo bottom, unmoving, waiting for the vehicle to thunder past. It could not react before Rai slewed the wheels into the hollow. The left front wheel hammered across the animals' back, rolled it once, and the rear wheel tore through a yielding mass in its fleece.

"Sorry; didn't see that hole," Rai muttered, and sped on. He was explaining to Val that if the parasites were extraterrestrial as Laura thought, he had some knotty decisions to make about exploiting the Oshara site.

Darkness returned to Chaco Wash as the Mitt rumbled westward, the lights and stink of its exhaust dying away. The coyote lifted her nose on the breeze, followed the scent through dusty bottoms toward a fresh kill. Her cubs would feed well this night, she thought, circling warily around the sheep that still twitched on the stones. She drifted nearer, puzzled by the acid taint, cocked her ears toward the faint susurrus within the fleece.

The coyote waited, indolent, relying on her ears and nose to tell more about this potential feast. Something flowed from the dead sheep; something thicker than blood, moving toward her. She took a dainty step over it, anointed it with precision, and listened as another semiliquid mass dropped from the carcass. Her hackles swelled at the stench. Coyotes had not survived this long by falling on every poisoned carcass tossed into

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arroyos by men. The coyote spun, kicked grit upon the offering, trotted away for a less malign meal.

The users exuded their chondroprotein as best they could, and waited for the dawn. At sunup they would find that they lay between the sheep and an ant hill. And from the sun and the ants there would be no appeal. It was the land, as always, that triumphed.

Valerie Clarke groaned with pleasure as she emerged from sleep, stretched her arms from the pallet. She had been awakened this way many times by Laura's gentle scalp massage. Then she remembered; her eyes flew open to meet those of Rai Koshare who knelt beside her. "Morning," he said as she sat up. "Thought you might like some breakfast."

"I thought you were—Laura," Val whispered, then put her face into her hands. "Oh, God, Rai; you'll have to give me a minute."

"There'll be lots of time—if you're willing to stay as you promised last night."

"Last night was tequila talking," she said, "and exhaustion. I don't know about staying, Rai. I've taken about as much as I can."

He rumbled gently, "I know that. It's why I'm telling you some things gradually. We—well, I want you to stay. As long as you will." He smiled, a warm entreaty, and spots of red showed over the high cheekbones as he went on quickly, "I'm not very good at this, so let me just blurt it out. We've shared a lot, but not enough; share my work and my pallet. Yep, that's what I wanted to say."

Val leveled a glare at him. "I get the picture. God knows I've watched you paint it! So I throw in with you, and the second I turn my back you'll crawl on somebody else's bones for lagniappe! Well, you can stuff it, Tonto. I won't play that way, and I won't have a man that does."

"Laura isn't just somebody else. She's part of us both." A hesitation, almost a quote: "More than you think, Val."

Val turned agonized eyes to heaven, shook tears aside angrily. "Now you've become an expert on Laura in a week's time."

"More like a few minutes," a voice replied. It was the gentle rumble of Rai Koshare, and simultaneously it was not. "Be nice, Deenie; this isn't easy for him either."

Deenie: diminutive of Val's first name, *Dina*, and used only by Laura Dunning in moments of endearment. The accent, the intonation were both Laura's. Weak with confusion, brittle with something akin to fright, Val stood. She was at rigid attention. "Don't do that," she begged. "Please, if you have any compassion at all,—"

"It's already done, Val." Rai speaking again. He reached out and she came to him, unresisting but enervated, very near collapse. He swept her up, eased into a sitting position to hold her in his lap, doll-like.

She laid her head on his shoulder, the tears streaming freely now. "You

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don't understand how that sounds," she sobbed.

"I know exactly," he said. "I'm hearing it too, you know. It's a depth of sharing I never expected to know, and I'm—forgive me, Laura,—I'm not comfortable with it yet. Val, just listen. Please."

He felt her listless shrug, took it for agreement, went on. "I felt that Laura was dying back there in the ravine. In a sense, of course, she was. But I was right about my tactile sense somehow matching Laura's telepathy. It did, literally. When I cupped my hands around her poor fractured skull, it became a two-way channel. Maybe it could only happen under extremes; maybe—I don't know.

"I couldn't bear to lose the essence of her, not physically so much as internally. Her memories, hopes, willingness to share; her love of life—and of you, Val. Then we realized we *were* sharing her mind, all of it pouring into me. And I asked her to come in and stay if she possibly could."

Slowly, in a disbelieving haze, Val straightened to stare into his face as Rai—but again it was no longer Rai's voice pattern—went on. "I was in such pain, Deenie," said the drawl-soft voice. "I know I took advantage of him, but I was so awfully hurt, so terribly afraid of dying.

"And suddenly it seemed that I could invest Rai with myself, I don't know how else to say it. He asked me to come in, and here I am. Most of me, at least. There wasn't time to share everything, so I left some of my childhood behind." A platinum laugh, entirely Laura: "I traveled light, so to speak."

So to speak: another of her pet phrases. Yet it was no longer an irritant, but validation of the seemingly impossible. The awesome fact of Laura's presence within Rai Koshare was almost beyond Val's grasp. She placed trembling fingertips on his face, and she did not realize that she was smiling past her tears. "You always did enjoy taking a dump in somebody else's drawers," she murmured. "Now you've made Rai a schizo. Bitch," she added tenderly, the smile becoming a grin.

"I don't think it will go on like this," said the Laura voice. "I hope I can settle into being a part melded into Rai. But I can't tell what you're thinking anymore, and I miss it. Tell me."

"Go to hell," was Val's artificially gay response, the tough shield by which she had learned to protect her tenderness. "A little privacy might improve our relationship."

Now it was undeniably Rai speaking: "I thought I'd be complete, with Laura sharing my awareness like this, Val. You know, it might be an advantage not to need anybody. But it only makes me need *you* more. For what it's worth, I'm afraid I—love you," he said, tasting the phrase as though it were his first experience with cream sherry. "Will you give me time to prove it?" He started to go on, stammered, said, "Be fair, Laura. She can make up her own mind," and fell determinedly silent, his gaze on Val.

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Val Clarke drew on reserves of strength from some hidden wellspring, stood up, walked to the fireplace and turned to study the swarthy strong face. "I don't know. I don't know if I could juggle two double handfuls like you both in one package." She began to pace, stopping twice to stare at Rai, each time resuming with a half-snort, half-chuckle. Rai sat placidly, hands on his knees, patient as only a pueblеño can be patient. At last, Val strode to him and placed her hands on his shoulders. "What was Laura going to say to convince me?"

His flush was barely detectable before the headshake. "I'm running my show," he said, impenetrable.

Val nodded. "Good. But you can give me a hint."

The prominent Koshare nostrils flared momentarily; a smile threatened to break out. All he would say was, "It had to do with making love."

"Uh-*huh*' I knew it, Laura. You figured I'd be crazy to refuse the best of both neddy-bye worlds?" She waited, expecting to hear a response from Laura.

Rai clamped his lips, burst out laughing at some internal dialogue, recovered. "She knows how to take advantage," he said to Val. Then added something within himself. "If you don't shut up, I'll slap my face."

At this, Val raised her hands helplessly. "Listen you two: if you think I'm going to spend the rest of the day, much less all summer, with a bisexual schizophrenic I'm ditsy about, and who knows how to turn me every way but loose on cold nights,—you are absolutely right, damn you. I'll give it a try, for my own selfish reasons. No promises beyond that; I'll try not to go bonkers.

"I wouldn't agree, Rai, if it weren't so obvious that you've got my sex-sodden lady friend under control. Just keep her that way and maybe we'll last through the day."

It proved to be a long summer, with unseasonably chill nights in the remote high desert country. Valerie Clarke was rarely moved to complain about the weather—or about Raimondo Koshare. ■

POSTLUDE

The social behavior of the ants after consuming the users.

Attempts to worship the Ogre Katcina as San Saba gradually becomes overpopulated.

Tyende, the Navajo clairvoyant. His sensing of the serenity beam as the Song of the Female Other. Tyende's cult and its success in reclaiming that spot from the desert. The squatters.

Gradual recovery of some of Laura's powers, and Rai's objection in behalf of Val. 'Divorce' of Rai and Laura; reconciliation.

Val's brief return to Chris Maffei; Maffei's genuine empathy and aid. Contact between Maffei and Laura at Mesa Verde ruins.

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The subject of a test is in a poor position to judge its real purpose.

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FEDERATION WORLD

JAMES WHITE

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The building was a white cube twenty storys high with a broad flight of white stairs leading up to the quietly impressive entrance on the second floor. From past experience Martin knew that the stairs retained their perfect whiteness no matter how many hundreds of people climbed them and that the sign above the entrance, which read GALACTIC FEDERATION EXAMINATION AND INDUCTION CENTER, projected the same message regardless of the language or the degree of literacy of the person viewing it.

He had not had the opportunity of speaking to a blind candidate for galactic citizenship, but presumably he would have received the message in some other fashion.

As he began to climb Martin saw that there were just three other people on the stairs—a young couple, working students judging by their age and dress, and an old man who was obviously much too frail to work. The oldster's face had the anxious, stubborn look of one whose life on Earth had become untenable for a variety of reasons which had forced him to try for something better, or at least different. The young couple climbed briskly and confidently, as if they knew what to expect at the top of the stairs. Like Martin they had probably been here before and had had second thoughts. Unlike Martin they now seemed to have made up their minds.

Not wishing to get into a discussion with any of them, Martin held back so as to allow the others to precede him through the entrance of the building.

Going through that entrance was still a shock, he thought, and always would be no matter how often he did it. There was no physical sensation, just the shattering realization that one had arrived in the center of an enormous reception area with a transparent roof, and that it was not on the second floor but the twentieth. Like the perpetually white stairs and the omnilingual signs, instantaneous matter transmission was just another piece of technological intimidation aimed at making the backward Earth people more amenable.

The reception area was carpeted and furnished in warm, relaxing shades of gold and green and brown, and covered with random groupings of chairs and reading desks. All but a few of the chairs were empty and the desks were heaped with Federation literature. Three of the distant walls were covered by large pictures, each of which showed a stylized, almost heraldic representation of one of the member races of the Galactic Federation. There were close to two hundred of the pictures ranged around the three walls and, so far as Martin could see, none of them was duplicated. Along the wall facing him, like a row of unmanned reservation desks at an Earthly air terminal, were the examination computers.

By the time he reached them the old man had been passed through, and he could hear the young couple talking quietly to the visual display unit of the examiner. But they were several desks away and Martin could not tell whether

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they were asking or answering questions. Then suddenly they removed their hands from the top surface of the unit and moved around the desk to disappear through one of the two doors behind it, the door bearing the symbol which appeared on all of the Federation literature and equipment. He had been watching the successful candidates so closely that he walked into the outer edge of another desk.

The display unit lit up and the words which appeared were white against a field of deep green.

"GOOD AFTERNOON, SIR. PLACE ONE HAND AGAINST THE UPPER SURFACE OF THIS UNIT AND STATE YOUR REASONS FOR WANTING TO BECOME A CITIZEN OF THE GALACTIC FEDERATION. PLEASE RELAX AND TAKE ALL THE TIME YOU REQUIRE."

Martin looked at the examiner, at the large, smooth cube whose only features were its display screen and the everpresent Federation symbol centered on top, and kept his hands by his sides.

He said, "I have studied the brochure and have asked questions not covered by it on two previous occasions. I do not want to waste your time."

"THANK YOU, SIR. PLEASE PASS THROUGH ON THE RIGHT AND USE THE UNMARKED DOOR."

For a moment he thought about passing on the left and going through the other door, the one which bore the symbol of the black diamond with rounded sides and sharp upper and lower tips set inside a circle of silver, and which looked so much like a single, alien eye, then he discarded the idea. During his last visit he had tried to do just that and found himself without warning at the foot of the entrance steps, with prospective candidates walking around him and giving him anxious looks in case they, like himself, might be expelled as temporarily or permanently Undesirable.

The induction centers had attracted a large number of Undesirables in the early days. There were stories told of individuals and groups who had tried to exert physical or psychological pressure of various kinds with a view to organizing private armies on the new world. And then there were the more simple, direct types who had wished merely to dismantle, remove and study the Federation equipment for its weapon potential. The reaction in all cases had been nonviolent, but salutary.

At the first sign of tinkering either with the minds of the candidates or the induction center equipment the offenders were moved, teleported, a distance of a few miles. The more persistent or aggressive ones found themselves suddenly on the other side of the planet without their weapons, equipment or clothing.

Martin considered himself at worst a borderline Undesirable, so he went through the unmarked door.

He found himself in a small room which, judging by the view from the window, was on a much lower level of the building. The room was bare except for the desk containing the examiner at its center, and the display screen was partially hidden by a female candidate

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standing before it. She turned her head to look at him briefly, then returned her attention to the screen.

She was tall, slim, dark-haired, with a firm and mature face and skin so smooth and unblemished that her age could have been anywhere between twenty-five and forty. Like the heavy, dark-rimmed spectacles she wore, her clothing was functional rather than decorative. Nevertheless, and in spite of what the examiner might decide about her as a candidate, Martin would not have described her as Undesirable.

"No, I am not frightened by your advanced technology," she said quietly in answer to a question Martin could not see. "Nor do I consider it to be magic. Your miracles are super scientific, not supernatural, in spite of the symbolism of the entrance stairs and the near Heaven you are offering us. But I keep wondering why you try so hard and often to impress us with this technology."

Martin edged sideways until he had a clear view of the screen, which was saying, "IT IS OUR POLICY TO TAKE EVERY OPPORTUNITY TO DRIVE HOME THE FACT THAT THE ADVANCED TECHNOLOGY EXISTS, WHETHER OR NOT YOU HAVE OCCASION TO USE IT, OR HAVE IT USED AGAINST YOU IN THE FUTURE. DISTANCE WITHIN THE GALAXY MEANS NOTHING TO US. NEITHER ARE THERE ANY PROBLEMS OF TRANSPORTATION, SUPPLY, ACCOMODATION OR LIVING SPACE ON YOUR NEW HOME. WE ARE CAPABLE OF TRANSPORTING YOUR WHOLE SPECIES, ALL OF ITS ARTIFACTS, DOMESTIC ANIMALS, LARGE NUMBERS OF ITS FAUNA, VEGETATION, AND EVEN THE ENTIRE GAS ENVELOPE OF YOUR PLANET IF IT WHERE NOT SO POLLUTED AS TO BE SCARCELY BREATHABLE.

"THAT TECHNOLOGY ENSURES THAT NO FEDERATION CITIZEN LACKS FOR ANYTHING IN THE PHYSICAL SENSE. WHAT THEY DO WITH THEIR MINDS IS THEIR OWN BUSINESS PROVIDED THE END RESULT OF THEIR THINKING DOES NOT INTERFERE WITH THE FREEDOM OF OTHER CITIZENS, EARTH-HUMAN OR OTHERWISE."

"I know, I've read the brochure," she replied sharply. "But I am concerned about the long-term effects of such mollycoddling. Surely there is the danger that the whole race will vegetate, stagnate?"

"YOU HAVE NOT STUDIED IT CLOSELY ENOUGH, OBVIOUSLY. THE INTENTION IS NOT TO FORCE YOU INTO IDLENESS BUT TO ENABLE YOU TO ACHIEVE YOUR FULL POTENTIAL. ALL INTELLIGENT SPECIES FEEL IMPELLED TO WORK AND BUILD AND THINK CONSTRUCTIVELY. HOBBYISTS, FOR EXAMPLE, DEVOTE MORE TIME AND EFFORT TO THE WORK WHICH INTERESTS THEM THAN TO THEIR SO-CALLED PROPER JOBS. BUT FEDERATION CITIZENS DO NOT WORK SIMPLY BECAUSE ANOTHER INDIVIDUAL TELLS THEM TO DO SO. NOR WILL THEY BE OVERPROTECTED. YOUR PEOPLE WILL STILL DIE BECAUSE OF OLD AGE, ACCIDENT OR DISEASE, AND IF ANYTHING IS DONE TO CHECK THESE PROCESSES IT WILL BE YOUR DOCTORS AND RESEARCHERS WHO DO IT. RESEARCH FACILITIES WILL BE PROVIDED BY US, YOU MAY REQUEST FEDERATION ASSISTANCE WHENEVER YOU NEED IT, BUT THE REAL WORK WILL STILL BE DONE

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BY YOU. IS IT STILL YOUR WISH TO BECOME A CITIZEN OF THE GALACTIC FEDERATION?"

"I . Yes," she said.

"THERE IS HESITATION. HAVE YOU MORE QUESTIONS?"

She nodded, then said, "Two, perhaps unimportant ones. You communicate with us pictorially or by projecting written language. Why do you use written rather than oral language? Also, it was twenty-two below zero and snowing heavily at my local induction center half an hour ago, and I left my protective clothing with the—"

"THE QUESTIONS ARE UNIMPORTANT BUT THEY WILL BE ANSWERED. WE ARE CAPABLE OF PROVIDING AURAL TRANSLATIONS OF OUR COMMUNICATIONS, BUT THE PROCESS IS A MECHANICAL ONE WHICH ROBS THE WORDS OF ALL EMOTIONAL CONTENT AND MAKES THEM, TO YOUR EARS, SOUND HARSH. THERE IS THE PROBABILITY THAT YOU WOULD BE LISTENING FOR EMOTIONAL TONES AND NUANCES, HIDDEN MEANINGS, WHICH MIGHT CONFUSE YOU AND DISTORT THE MESSAGE. VISUAL PRESENTATION OF THE WORDS REDUCES THIS PROBABILITY. REGARDING YOUR PROTECTIVE CLOTHING, IF YOUR APPLICATION FOR CITIZENSHIP IS UNSUCCESSFUL YOU WILL BE RETURNED TO YOUR LOCAL INDUCTION CENTER. IF YOU ARE ACCEPTED FOR CITIZENSHIP YOU WILL NOT NEED THEM.

"PASS THROUGH ON THE RIGHT AND USE THE UNMARKED DOOR."

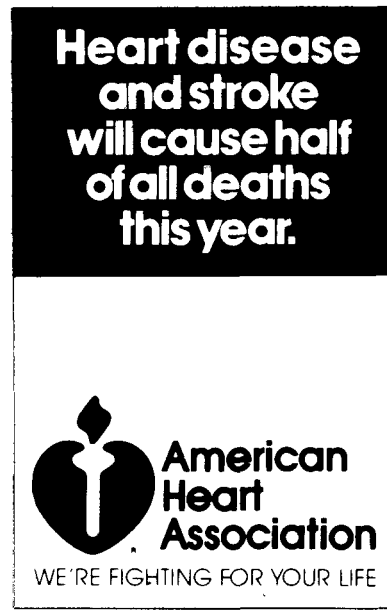
Martin saw her shoulders droop with disappointment, but otherwise she remained motionless. She said, "What would happen if I were to be directed through the other door?"

"ALL OF THE MARKED DOORS OPEN ONTO THE FEDERATION WORLD WHICH WILL BE YOUR NEW HOME, SPECIFICALLY INTO ONE OF THE REORIENTATION CENTERS. IN DUE COURSE YOU WOULD CHOOSE WHERE YOU WOULD GO AND THE TYPE OF WORK YOU WOULD LIKE TO DO. THEY ARE THE DOORS USED BY SUCCESSFUL CANDIDATES. THE UNMARKED DOORS ARE FOR THE NON-CITIZENS."

"Dammit, what's the difference?"

"NON-CITIZENS DO AS THEY ARE TOLD."

She opened her mouth to ask another question, but the examiner's screen had gone dark. She looked at Martin, tried to smile and said, "Good luck." The unmarked door closed behind her before he could reply.


Heart disease and stroke will cause half of all deaths this year.
American Heart Association
WE'RE FIGHTING FOR YOUR LIFE

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"QUESTIONS?" said the screen as soon as his palm made contact with the sensor plate on top of the examiner.

The letters were white on bright red, he noted. The first examiner's screen had been a restful shade of green and its conversation had been polite, even friendly, while the words he had seen projected onto this screen had been abrupt, curt and downright critical at times. Perhaps the examiners were becoming impatient.

Martin wet his lips and thought *So non-citizens do as they are told. . . ?* He wanted the examiner to enlarge on that particular piece of information. This datum suggested that the Galactic Federation was something less than a perfect social and cultural organization since it contained lower grade, or second-class citizens. But it had refused to answer the previous candidate so it was unlikely to do so for him. Was it possible to approach the subject from a different direction?

"The previous candidate asked some of the questions I had intended asking myself," he said to give himself time to think and, he realized suddenly, because he was honestly curious. "Is it permitted to know her name and background?"

"ONLY IF YOU ARE BOTH ACCEPTED AS CITIZENS OR NON-CITIZENS INTENDING TO WORK ON THE SAME PROJECTS. MY SENSOR PLATE INPUT SUGGESTS THAT THE QUESTION YOU WANT TO ASK IS NOT THE ONE BEING VERBALIZED. THIS IS A FORM OF DISHONESTY AND WASTEFUL OF EXAMINATION TIME. IF YOU REQUIRE MORE TIME FOR CONSIDERATION YOU MAY RETURN AT A LATER TIME."

The green screen examiner had told him to take all the time he needed, but this one was rushing things, to say the least. Did the red screen imply a warning of some kind? Was he about to be failed?

"POLITENESS AS WELL AS INDECISIVENESS IS ALSO A WASTE OF TIME. YOUR MANNER IS UNIMPORTANT. SPEAK HONESTLY. THE SENSOR PLATE IS NOT A TELEPATHIC DEVICE BUT IT WILL REGISTER THE SLIGHTEST DEVIATION BETWEEN YOUR INTENTIONS AND YOUR WORDS.

"IF YOU CANNOT ASK QUESTIONS THEN VERBALIZE YOUR FEARS OR SUSPICIONS. AND REMEMBER THAT I CAN OFFER YOU NO VIOLENCE SO DO NOT BE AFRAID. THE MOST I CAN DO IS DECLARE YOU UNSUITABLE FOR CITIZENSHIP."

Martin felt himself begin to sweat. Surely that implied threat of exclusion from citizenship was in itself a form of violence, a psychological weapon. Why could he not simply accept everything he had been told and *ask* to be a citizen? The standards for acceptance were somewhat unclear but, judging by the large numbers and types of individuals who made it, they could not be so high. Unless there was something inherent in his personality which rendered him unsuitable, something which registered on the examiner's sensor plate.

"Why do so many others qualify?" he asked suddenly. "Oldsters, children, people of average intelligence or below, people with no particular skills or training? Some of them were ac-

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cepted at first examination in less than fifteen minutes. I saw it myself."

"DO YOU CONSIDER YOURSELF SUPERIOR TO THEM?"

He felt his hand sweating on the sensor plate and thought *Be honest.* Truthfully, he replied, "Superior to some of them. But why are they accepted?"

"THEY ANSWER QUESTIONS. YOUR TYPE, INDIRECTLY OR OTHERWISE, ASK QUESTIONS. YOU ARE ABOUT TO ASK ANOTHER."

"Very well," said Martin angrily. "Considering your advanced technology, and the fact that distance and the transportation of large numbers of people and their artifacts mean nothing to you, why do we have to leave Earth to join the Federation?"

"THIS IS COVERED IN DETAIL ON PAGES 7 THROUGH 18 OF THE BROCHURE."

"I know, I know," said Martin, wondering why a mere device, no matter how sophisticated its design, should make him feel like taking a sledgehammer to it. Was the examiner simply a terminal of an advanced computer as the brochure said it was, or was he taking their word for that just as the unquestioning, unsuspicious, ordinary and successful candidates for Federation citizenship had taken it? More calmly he went on, "I fully understand that our solar system is out on the fringe of the galaxy, very far removed spatially from the center of galactic science and culture and that, because of your advanced technology, this separation is more important psychologically than physically. But surely if we were to remain on Earth our contact with the other Federation cultures would be more gradual, and natural?"

"REFER TO PAGES 21 TO 25."

Perhaps there was not a multi-tentacled Federation citizen controlling the examiner as Martin had begun to suspect. It was behaving like a computer now, one which had been programmed by a bunch of extra-terrestrial bureaucrats.

"I have studied those pages closely," said Martin patiently. "Earth is a very sick planet. Polluted, overpopulated and denuded of natural resources to such an extent that in a very few decades starvation and war will result in virtual genocide, according to you people. You are probably right. But why, with your incredibly high level of technology which you are so fond of demonstrating to us, don't you simply cure our sick planet? Forcing our people into premature contact with alien cultures could be dangerous."

"DOES THE PROSPECT OF MEETING EXTRA-TERRESTRIAL INTELLIGENCES FRIGHTEN YOU?"

The sensor plate was clammy against his palm. Give an honest answer, he reminded himself, because if you do not then this damn thing, whether it is a device or a front for a citizen examiner, will know it.

"I don't know," he said.

The screen remained blank, projecting a bright, angry red rectangle on which he expected to see appear the words of rejection. Not only was his palm on the sensor plate sweating but he could feel sweat beading his fore-

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head and trickling down from his armpits. Still the screen remained blank. He stared at it anxiously and, because it was so much on his mind, he began to form mental images on the bright red surface of the arrival of the stupendous Federation ships...

They had made no secret of their arrival. Upwards of two-hundred mighty vessels, ranging in size from three-hundred yards to three miles in diameter, had taken up positions in synchronous orbit above the equator to hang like a blazing necklace of diamonds in Earth's night sky. Within the hour they had identified themselves and given the reason for their presence.

The people of Earth were being given the opportunity of becoming citizens of the Galactic Federation. Examination and induction centers would be set up forthwith, and it was expected that the majority of the individuals belonging to the species Homo sapiens would pass these examinations and move to a world which had no pollution, power, population or food supply problems, where there were no deserts or arctic wastes, and where every square foot of their new world's land surface was or could be made fruitful. To cushion the shock of first contact and to avoid the initial, and natural, feelings of xenophobia all communication between the Federation people and Homo sapien candidates for citizenship would be by printed word only.

The invitation had appeared at regular and frequent intervals on every TV screen in the world and there was no way, short of switching off the set, of blocking the message. And when the big white cubes which were the twenty-story induction centers appeared on pieces of empty ground convenient to populous areas, they could not be stopped either.

Many of Earth's most powerful governments and political and military leaders tried very hard to stop them, but neither political argument nor military force had any effect. Armored columns, massed artillery, tactical nukes and various other forms of frightfulness were tried and just did not work—the weaponry malfunctioned or was teleported far, far away. It was pointed out very firmly that the invitation to join the Federation was open to all responsible members of the Earth-human race, but it did *not* apply to certain of the world's political systems or any of its military organizations.

It was also pointed out that trust between the various species which made up the Federation was important, and the earlier an Earth-human was able to trust extraterrestrials the greater were his or her chances of being accepted as a citizen. However, it was natural for a newly contacted race to feel suspicious of the Federation's motives and worried about their own reactions to the new world. To reassure these people two-way travel would be permitted between Earth and the new planet for an agreed period, by observers nominated by the Earth population, so that they could be satisfied in every respect regarding the desirability of the move from Earth. For administrative and

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logistic reasons travel would be one-way after that. Apparently the transfer of a planetary population and its non-intelligent domesticated life-forms, cultural, educational and manufacturing complexes, air and surface transport mechanisms, communications equipment was complicated enough without having random return traffic adding to the difficulties.

Except for the relatively small proportion of Undesirables and non-citizens who would remain, it was intended to complete the evacuation of Earth in ten years. . .

"What happens to the people who are left?" said Martin suddenly. But the screen remained blank except for the images, like pictures seen in the flames of an old-time fire.

Many millions of the world's population had passed the examinations and had gone to the new world on trust and sight unseen—although to be fair most of them came from areas where subsistence level conditions left them with very little to lose. Then there were the people who worried in case these first citizens were not capable of looking after themselves and they wanted to go along to organize things for them. The would-be organizers had a much harder time satisfying the Federation examiners regarding their

IN TIMES TO COME

Next month Analog moves to a new home—Davis Publications, Inc.—in which we hope to flourish for many more decades. I'll say a little more about that in the editorial next month, but for now suffice it to say that the show goes on.

Last year Edward A. Byers attracted a good deal of notice with his first two Analog stories dealing with the mysterious alien stargates which opened easily onto "garbage" worlds but were very selective about whom they let through to attractive ones. Byers makes his first cover appearance next month with "The Tactics of Despair," a novelette about what happened when humans learned how to get through to Verde, one of those hospitable planets. The trick, you may remember, was that the gate to Verdes would pass only minds without predatory instincts—but humans have a long history of finding ways to circumvent things like that. The real conflict, in this case, arose when an alien race had such an utterly different way of viewing the universe that neither they nor humans could imagine what the other saw. That cover is by H. R. van Dongen, who was once one of this magazines most regular illustrators and has been away too long.

The fact article is a rather long one, but "Demythologizing the Black Hole" is a big job. A great deal of fallacious folklore has grown up about these fascinating objects lately, and Richard Matzner, Tsvi Piran, and Tony Rothman—all of whom are actively engaged in research in this field—set the record straight on quite a few points in this highly readable, informative, and entertaining piece.

We'll also have stories by Mack Reynolds, Gary Alan Ruse, Katherine MacLean, and quite possibly one or two new writers you'll want to watch.

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suitability for citizenship. They had to make it clear, by word and past deeds and sensor-plate readings, that they were the type of person who had the ability and the need to care for other people and not simply the kind who wanted power.

Despite the early influx of simple and trusting Earth people the Federation saw to it that nobody went hungry or unsheltered. But for psychological reasons it wanted the new citizens to become self-supporting as soon as possible—too much help from Federation technology could, at this early stage, set up an inferiority complex which would stunt future cultural and scientific development. So the transfer was made as smoothly as possible.

It included the transfer of public buildings, dwellings which ranged from mud huts to skyscraper blocks and even whole factory complexes, transported complete by the vast matter transmitters orbiting Earth. Land and air transport vehicles with the construction and maintenance facilities to support them would come later, but they would be restricted to vehicles which used batteries and aeroplanes fueled by non-polluting liquid hydrogen because mining and oil-drilling machinery were forbidden on the Federation world.

One of the first and most pleasant discoveries made by the new arrivals was that the flora and fauna had been transplanted many centuries earlier from Earth and required only cultivation and domestication. Apart from the bright stratospheric haze in the otherwise cloudless sky and the thirty-five-hour day the new world was very much like home. There was no moon and the only way to see the sun was from a space observatory, but Earth's space hardware was pretty far down the priority list for transfer.

It seemed that the human race was not to be given interstellar travel, matter transmitters or the other technological marvels of Federation science, but they would be given a little guidance in discovering these things for themselves. There was plenty of time. There would be no pressure of any kind. The Federation was deeply concerned that the Earth culture should not suffer from forced growth.

Surely, Martin thought angrily, *these were the actions of a sensitive, altruistic, highly ethical group of entities.* Why could he not accept what they were offering at face value? What stupid defect in his personality was making him uneasy?

He took his hand off the sensor plate to wipe the palm with his handkerchief. The screen remained lighted but blank and he put his hand back again.

Martin remembered how the reports and the Earth observers had come back, the former in an increasing flood and the latter in a reluctant trickle. It was a beautiful world, its climate semi-tropical throughout because of the heat-retaining stratospheric haze, and the Earth vegetation and animal life were flourishing. In short it was the kind of world his grandparents had insisted Earth had been back in the good-old-days when there was room to

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breathe and air which was breathable.

Not all of the observers were satisfied merely to check on the environment. Many of them asked to meet Federation citizens of other species and tried, not always successfully, to communicate with them while wearing or riding in the complex life-support gear necessary for their protection in extra-terrestrial living conditions. These meetings were unsatisfactory for the simple reason that the Earth observers were often ignored. It seemed that the majority of the Federation's citizenry, like the majority of Earth-people, were much more interested in their own affairs than those of other people, so that the data collected on extra-terrestrial physiology and social structures was limited. Another reason for the lack of success was impatience. The Earth observers, who were themselves Federation citizens of only a few months standing, wanted to return as quickly as possible to the new world. Some of them actually confessed to feeling homesick for it.

But that had been nearly eight years ago, Martin thought as he stared into the blank red screen. The transfer of Earth's population was virtually complete. Soon there would be nobody left but the people who, for psychopathological or personal reasons, were unsuitable for Federation citizenship. There was nothing or nobody to hold him on Earth, and when he thought of all the things he had heard and seen of the new world . . .

"I want to become a citizen of the Galactic Federation," he said with quiet desperation edging in his voice.

But he was all too aware of his palm on the sensor plate saying, not in words but in the electro-chemical changes in his skin and the equally tiny variations in muscle tensions and pulse-rate, something slightly different. Unlike his voice, those psycho-physiological reactions were saying that all this was too good to be true, that there had to be a catch in it somewhere, and that there was something the minds behind the robot examiners were not telling him.

"PASS THROUGH ON THE RIGHT," said the screen suddenly, "AND USE THE UNMARKED DOOR."

The door opened into a room of another building. Outside the window there was a vista of pine trees poking like green spearheads through a blanket of sunlit, melting snow. He felt irritated because they still felt the need to impress him with their instantaneous transport system—had they never heard of the law of diminishing returns? But as he placed his hand on the sensor plate and looked beyond it his irritation changed abruptly to bitter disappointment.

Behind the examiner there was only one door and it was unmarked.

"QUESTIONS?"

This time the word shone white on a field of icy blue, giving it an aura of cool, clinical detachment. But Martin did not feel anything at all like that.

"Am I being refused Federation citizenship?" he said angrily. "Am I an Undesirable? Am I wasting my time here?"

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"YOU ARE CURRENTLY A NON-CITIZEN, NOT AN UNDESIRABLE."

"What the blazes is the difference?"

"THE STATUS OF NON-CITIZEN CAN BE A TEMPORARY CONDITION. UNDESIRABLES REMAIN SO."

Martin looked at the unmarked door again, remembering the girl candidate who had briefly shared an examiner with him before going...somewhere else. She had been told that the unmarked doors were for non-citizens and that non-citizens did as they were told. No matter what was decided in this room he would go through that door. There was no alternative, and suddenly he was frightened.

"Is it possible to return me to my own locality," he said as calmly as he could manage, "so that I can have more time to think?"

"I STRONGLY ADVISE AGAINST IT."

He took his sweating palm off the plate and rubbed it against his thigh. He did not replace it.

"YOUR CASE SHOULD BE DECIDED NOW."

The examiner, the room and the view outside the window became sharp and clear to him, as if he might be seeing them for the last time and his mind was holding onto the present moment because very shortly something awful was going to happen. When he spoke his tone was too high-pitched and harsh, a stranger's voice.

"What...What's the hurry?"

"NOTIFICATION OF PROCEDURAL CHANGE. UNTIL TOLD OTHERWISE YOU WILL ANSWER, NOT ASK, QUESTIONS. PLACE YOUR PALM ON THE SENSOR PLATE."

Martin swallowed and did as he was told. As soon as his palm touched the plate the questions began.

"DO YOU WISH TO BECOME A CITIZEN OF THE GALACTIC FEDERATION?"

"Yes," said Martin firmly.

"SENSOR READINGS INDICATE RESERVATIONS. DO YOU WISH TO MOVE TO THE FEDERATION PLANET?"

"Yes."

"YOUR ANSWER IS NOT FULLY SUPPORTED BY THE SENSOR. DO YOU NOT WISH TO LEAVE EARTH BECAUSE OF EXPECTED HOMESICKNESS, PATRIOTIC FEELINGS FOR YOUR BIRTHPLACE, OR OTHER EMOTIONAL REASONS?"

"No!" said Martin vehemently. He was thinking of what the Earth had become even before the eight years of exodus had left it with little more than a skeleton crew of Undesirables and non-citizens like himself who could not make up their minds or trust even themselves, much less an unseen alien. Since his parents had died in a food riot twelve years ago there had been nothing or nobody to hold him to any part of this sick and hopeless planet. He said again, "No."

"IS IT A MATTER OF TRUST?"

"Yes."

"YOU ARE SUSPICIOUS REGARDING OUR MOTIVES? DO YOU THINK WE ARE TELLING YOU LIES?"

"I'm...I'm not sure."

"BRIEFLY OUTLINE THE NATURE OF YOUR FEARS, SUSPICIONS, FEELINGS OR GRIEVANCES REGARDING THE FEDERATION'S ACTIVITIES ON YOUR PLANET."

Martin could not think of anything

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to say, but he knew that his palm on the sensor plate was saying far too much.

"THE FOLLOWING IS A LIST OF THE MOST COMMON FEARS AND SUSPICIONS ENCOUNTERED DURING THE EXAMINATION OF CANDIDATES FOR CITIZENSHIP. INDICATE VERBALLY THE ONE WHICH MOST CLOSELY APPROXIMATES YOUR CURRENT FEELINGS.

"ONE. THE GALACTIC FEDERATION IS EVIL, INHERENTLY VICIOUS AND UTTERLY INIMICAL TO MANKIND AND IS LULLING YOU INTO A FALSE SENSE OF SECURITY BY OFFERING THE EQUIVALENT OF HEAVEN ON THE NEW EARTH, WHERE YOUR RACE CAN BE EXTERMINATED PIECEMEAL WHILE BEMUSED BY A COMPLEX AND TECHNOLOGY-SUPPORTED CONFIDENCE TRICK. TWO. EARTH-PEOPLE ARE NOT DEMATERIALIZED AND TRANSPORTED TO THE NEW PLANET. THEY ARE MATERIALIZED WITHOUT PROTECTION IN SPACE WHERE THEY DIE. THREE. THE EARTH-PEOPLE ARE USED SIMPLY AS FOOD FOR THE FRIGHTFUL AND INSATIABLY HUNGRY POPULATION OF THE FEDERATION. FOUR. THE FEDERATION IS THE FIGMENT OF THE IMAGINATION OF ONE ALIEN RACE, SO VISUALLY HORRIFYING AND REPELLANT THAT IT COMMUNICATES THROUGH DEVICES LIKE THE EXAMINERS WHICH SUBTLY CONTROL THE MINDS OF CANDIDATES SO THAT THEY BELIEVE EVERYTHING THEY SEE AND HEAR. FIVE. THE FEDERATION IS SO ADVANCED IN THE NON-PHYSICAL SCIENCES THAT THE PICTURES AND OTHER EVIDENCE OF THE NEW WORLD, THE VAST FLEET OF SHIPS IN SYNCHRONOUS ORBIT, THE RADAR AND VISUAL IMAGES, AND THE REPORTS OF SO-CALLED VISITORS TO THE NEW WORLD WERE THE RESULT OF DIRECT MENTAL CONTROL AND NONE OF IT HAS ANY PHYSICAL ACTUALITY. SIX. THE EARTH-PEOPLE ARE NOT BEING TRANSPORTED TO THE NEW WORLD BUT ARE DYING ON THE OTHER SIDE OF THE DOORS MARKED WITH THE FEDERATION SYMBOL. SEVEN. WE ARE SO COMPLETELY ALIEN AND INCOMPREHENSIBLE TO YOU THAT YOU COULD NOT EVEN CONCEIVE OF THE PURPOSES FOR WHICH YOU WILL BE USED OR THE—"

"But you understand *us*," Martin broke in. "Surely understanding is a two-way process. That is a ridiculous suggestion."

"THE SENSOR RECORDS AN OVER-REACTION TO FEELINGS OF DOUBT AND INFERIORITY. UNDERSTANDABLE. ARE THE OTHER SUGGESTIONS RIDICULOUS?"

"Yes."

"BUT?"

"Some of them are, well, worrying. The people who are being accepted for citizenship, while they are in many cases good, responsible and sometimes highly intelligent people, are not the type who will make trouble if things aren't what they expected. You're taking only the sheep and..."

"THE SHEPHERDS."

"...Leaving the wolves on Earth. What right have you to do this to us?"

"THE RIGHT OF A RESCUER TO SAVE A BEING INTENT ON COMMITTING SUICIDE. A BASIC QUESTION. DO YOU BELIEVE THAT WE MEAN YOU HARM?"

"No."

"SENSOR INDICATES PARTIAL UN-

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TRUTH."

"Not intentionally."

"EXPLAIN."

"You do not intend to harm us," Martin said firmly, "either as individuals or as a race. I can believe that now. We would be hopelessly paranoid not to believe that you are trying to help us, even though your reasons for evacuating Earth seem a bit high-handed and, considering the resources available to you, not wholly convincing."

"As well," he went on, "the brochure tells us that the Undesirables and non-citizens who remain on Earth will not suffer physical hardship unless they cause it themselves, and that the Earth will not be a pleasant place for them. On the other hand, the new planet is a very pleasant place. So much so that there is little for the citizens to do for physical and mental exercise. They will not even be able to run from the wolves. In fact, they may be in danger of opting for a cultural dead end, a world in which they will degenerate and die as a species. Whereas on Earth you have said that non-citizens and Undesirables will have to obey instructions. I wonder if—"

"INSTRUCTIONS FOR THE IRRESPONSIBLE AND UNDESIRABLE ELEMENT ARE SIMPLE. THEY WILL NOT HARM OR CAUSE PHYSICAL OR MENTAL HARDSHIP TO NON-CITIZENS REMAINING PERMANENTLY OR TEMPORARILY ON EARTH. THIS INSTRUCTION WILL BE ENFORCED NON-VIOLENTLY. NON-CITIZENS, DEPENDING ON THEIR ABILITIES AND PSYCHOLOGICAL PROFILES, WILL RECEIVE MORE COMPLEX INSTRUCTIONS. INSTRUCTIONS TO RESPONSIBLE NON-CITIZENS WILL NOT BE ENFORCED."

Earth would not be a pleasant place, Martin thought, but it would not be actively unpleasant if the responsible non-citizens did as they were told. And the examiner seemed to be suggesting that they would do as they were told willingly because they would realize that it was for their own good. Whereas on the new world...

He said, "I can't quite believe... Is there something you are not telling me about the new planet?"

"IS FEAR OF ULTIMATE BOREDOM THE REASON FOR YOUR INABILITY TO ACCEPT THE NEW LIFE WE ARE OFFERING YOU?"

"I...I suppose so."

"SENSOR CORROBORATES. CANDIDATE IS UNSUITABLE FOR CITIZENSHIP OF THE GALACTIC FEDERATION. PASS EITHER SIDE AND GO THROUGH THE DOOR FACING YOU."

He stumbled as he went through the door. There was a sudden feeling of vertigo and he instinctively put out his arms to keep from falling. It was a small room for the number of people in it, and for a moment he felt as if he was in a descending elevator.

"You'll get used to it in a moment," said the woman he had met earlier. Her face was pale, as if she had recently received some kind of shock, but her smile was reassuring and sympathetic. There were six other people in the room, three women and three men, of different ages and nationalities, and some of them smiled as well.

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They were all standing in front of the window but they moved aside to enable Martin to see the view.

The stretch of broken, stony, airless ground made him think at first glance that he was on the moon—the low gravity would have explained his difficulty in maintaining balance. But it was a moon, although not *the* moon, he saw as soon as he raised his eyes above the horizon. For the sky blazed with stars, singly, in clusters, and in great, swirling jeweled eddies, and so dense was the star field that it was difficult to see a part of the sky which was completely dark—except in one area high overhead where there hung an enormous, black and featureless shape which was at least twenty times larger than the disc of the full moon seen from Earth.

It was the shape of the Federation symbol.

Martin became aware slowly that his pulse was hammering loudly in his ears, and that he had been looking at the sky with such an intensity of wonder that he had forgotten to breathe. He took a ragged breath and said, "Is . . . Is it some kind of black hole?"

"NEGATIVE."

Because the room was lit only by that glorious starlight he had not noticed the examiner until the word appeared white on a black screen. There was no sensor plate on top and this examiner, he thought, was not fooling around with colored screens and subtle psychological pressures. He knew that his questions would be answered simply and directly.

Unless they were forestalled . . .

"THIS IS THE FEDERATION WORLD."

. . . or he began to see the answers for himself.

"IT IS A HOLLOW BODY FABRICATED FROM MATERIAL WHICH COMPRISED THE PLANETS OF THIS AND MANY OTHER SOLAR SYSTEMS AND IT CONTAINS THE INTELLIGENT BEINGS OF NEARLY TWO-HUNDRED DIFFERENT SPECIES WHO ARE THE CITIZENS OF THE GALACTIC FEDERATION. THIS WORLD, WHICH AMONG EARTH SCIENTISTS WOULD BE CALLED A MODIFIED DYSON SPHERE, ENCLOSES THE SYSTEM'S SUN AND USES ITS OUTPUT FOR LIGHT, HEAT, AND POWER FOR ITS SOIL SYNTHESIZERS, ATMOSPHERE PRODUCTION AND WEATHER CONTROL MACHINERY, GENERAL FABRICATION AND FOOD SUPPLY. THE DIAMETER OF THE FEDERATION WORLD IS IN EXCESS OF TWO HUNDRED AND EIGHTY MILLION MILES AND IT HAS A USABLE SURFACE AREA, INCLUDING THE CONICAL EXTENSIONS AT THE POLES, OF OVER TWO-HUNDRED AND FIFTY-THOUSAND-MILLION-SQUARE MILES, OR WELL OVER ONE-THOUSAND-MILLION TIMES THE SURFACE AREA OF EARTH. THE PROJECTED FUTURE POPULATIONS OF ALL THE MEMBER SPECIES OF THE GALACTIC FEDERATION TOGETHER WITH THOSE OF THE HUNDREDS OF AS YET UNDISCOVERED INTELLIGENT CULTURES WHO HAVE NOT YET BEEN INVITED TO JOIN, WILL NEVER BE ABLE TO FULLY POPULATE THIS WORLD."

The words, diagrams and sharply detailed pictures flashed onto the screen, calmly describing the awful

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immensity of the Federation World, its topography, atmospheres, temperature and weather control machinery, and the system of light neutralizer fields which provided day and night for those species which needed them. It rotated ponderously and with seeming slowness, furnishing maximum gravity along the equatorial area for those beings who had come from higher-G planets, and a diminishing artificial gravity approaching the poles where the surface was stepped and terraced so that the centrifugal force would be at right angles to the ground.

Citizens wishing to make contact with other-species citizens used aircraft or intra-planetary spaceships. Contact was encouraged but not if it involved the risk of individual or species invasion of privacy. So touchy were some of the cultures that the stratosphere of the entire Federation World had been rendered opaque so that citizens would not be able to watch each other through telescopes by looking upwards and across their hollow superplanet.

For those beings who wanted contact with members of another species, and they made up a very small proportion of newly-accepted citizens, an atmosphere flight of a few months instead of hours duration would bring them to the land area of their next-door, other-species neighbors. The technical difficulties encountered in organizing such a trip by the visitors and visited ensured that the contact was desired by both parties.

The vast planet was a superthin eggshell of metal which was ultra-hard and fantastically dense, and the soils and atmospheres which covered the inner surface were synthetic and produced as and when population density required them. On the rare occasions when the atmospheres of adjoining species were mutually toxic, one-hundred-mile-high walls, transparent in the higher latitudes so as not to interfere with the sunlight and tagged with air-and spacecraft warning beacons, separated the two areas. These were similar to the walls which encircled the five-hundred-miles-wide-entry ports, positioned at the points of the conical polar extensions, to keep the atmosphere from being lost into extra-planetary space.

In the gravity-free polar areas were the great, thousand-mile-square tracts of bare metal on which were built the atmosphere and soil synthesizers, the matter transmitter units, searchship building and maintenance docks and the power sources for the long-range projectors which could turn aside or destroy any astronomical body large enough to endanger the superplanet by a collision.

All at once the awful immensity of the Federation World, the incredibly high level of science and technology which had created and maintained it, and the inutterable pettiness and insignificance of his suspicions and questions made Martin want to run away and hide himself. He felt like an aboriginal grass-hut dweller suddenly confronted with a block of skyscraper

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offices and busy rush-hour traffic.

"You are inviting us to join you," he said numbly, "and you built . . . *that!*"

"WE DID NOT BUILD THE FEDERATION WORLD, NOR WOULD WE BE CAPABLE OF DOING SO IN THE FORESEEABLE FUTURE. PLEASE TURN AROUND AND REGARD ME."

He turned quickly. The others, no doubt because they had already had this experience, turned more slowly. On his right the wall had become transparent, or it was a wall-sized television screen showing a creature lying or perhaps standing surrounded by a complex control desk. It was vaguely crab-like, with too many legs and appendages, and its body was covered by warty excrescences and fleshy, frond-like growths. The single eye was wide and bulging, like a transparent sausage with two independently moving pupils. He had seen a pictorial representation of one of these beings in the reception area of the induction center, but this entity bore about as much resemblance to the picture as a real animal did to a cute cartoon treatment by Disney.

"NO DOUBT YOU FIND ME AS VISUALLY REPULSIVE AS I DO YOU. THE FEELING DIMINISHES WITH REPEATED CONTACT. BUT TO ANSWER THE QUESTION YOU WERE ABOUT TO ASK, THE FEDERATION WORLD WAS THE ULTIMATE PROJECT, IN PURELY PHYSICAL TERMS, OF AN INCREDIBLY ANCIENT RACE WHICH NO LONGER DWELLS THERE, ALTHOUGH THEY STILL MAKE NON-PHYSICAL CONTACT WITH US EVERY FEW CENTURIES TO GIVE ASSISTANCE AND ADVICE. THE PROBABILITY IS THAT THEY HAVE EVOLVED TO A STAGE WHERE PHYSICAL EXISTENCE IS NO LONGER A REQUIREMENT. THEY ARE THE BUILDERS.

"MY RACE, WHICH WAS THEN AND STILL REMAINS THE MOST HIGHLY ADVANCED OF THOSE ENCOUNTERED IN THIS GALAXY, WAS AMONG THE FIRST TO BE INVITED TO JOIN THE FEDERATION WORLD. WE ALSO HAD OUR SHARE OF RESTLESS AND IMPATIENT ENTITIES WHO WERE NOT SURE THAT THE SAFE, PROTECTED, INFINITELY SPACIOUS FEDERATION WORLD WAS FOR THEM, AND THESE PEOPLE WERE SELECTED AND TRAINED BY THE BUILDERS TO DO THE RELATIVELY MENIAL TASKS. ON EARTH YOU WOULD CALL US ERRAND BOYS, ODD-JOB MEN, LOWER-GRADE SERVANTS. WE WERE TAUGHT TO UNDERSAND AND USE THE MATTER TRANSMITTERS AND SYNTHESIZERS, THE WORLD'S OPERATION AND MAINTENANCE, OTHER SPECIES COMMUNICATIONS AND ASSESSMENT TECHNIQUES, AND THE CONSTRUCTION AND OPERATION OF HYPERSHIPS FOR THE SEARCH PROGRAM.

"WE FOUND THAT IN EVERY SPECIES INVITED TO JOIN THE FEDERATION WORLD THERE WERE INVARIABLY A SMALL NUMBER WHO, INTELLECTUALLY OR INSTINCTIVELY, COULD NOT ACCEPT THE INVITATION. THESE ENTITIES, THE NON-CITIZENS, CONTINUE TO JOIN US AND ASSIST IN PERFORMING THE TASKS SET BY THE BUILDERS."

One of the being's appendages rose ponderously to indicate the dense, shining star field and the pointed ovoid silhouette which was the Federation World, and it went on, "OUR PRINCIPAL TASK IS TO SEEK OUT

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THE INTELLIGENT RACES OF THIS GALAXY AND BRING THEM INTO THE SECURITY AND FREEDOM OF THE FEDERATION WORLD THE BUILDERS HAVE PROVIDED FOR THEM, BEFORE THEY PERISH IN THEIR OWN PLANETARY EFFLUVIA OR SOME OTHER CATASTROPHE BEFALLS THEM. AFTER SUITABLE TRAINING YOUR TASKS WILL INCLUDE ASSISTING US WITH CANDIDATE SCREENING ON EARTH AND AS SEARCHSHIP PERSONNEL, WORK WHICH, CONSIDERING YOUR PRESENT STAGE OF DEVELOPMENT, WILL TAX YOUR ABILITIES TO THE FULL. TO AID YOU THERE ARE THE FACILITIES OF THE FEDERATION MEDICAL ESTABLISHMENTS WHICH WILL EXTEND YOUR LIFESPAN AND PHYSICAL CAPABILITIES SO THAT YOUR LENGTHY TRAINING CAN BE PUT TO EFFECTIVE USE. IF AT ANY TIME THE WORK OF A NON-CITIZEN BECOMES TOO ONEROUS, YOU WILL BE GRANTED FEDERATION CITIZENSHIP AS A RIGHT.

"LIFE IN THE FEDERATION WORLD IS MORE LEISURELY. ITS PURPOSE WAS AND IS TO BRING TOGETHER ALL THE INTELLIGENT SPECIES IN THE GALAXY AND LET THEM INTERMINGLE AND GROW SO THAT, IN THE FAR DISTANT FUTURE THE PURPOSE OF THE BUILDERS WILL COME TO FRUITION. THIS PURPOSE IS PRESENTLY INCOMPREHENSIBLE TO US, BUT WE HAVE BEEN TOLD THAT THE COMBINED INTELLIGENCE AND POTENTIAL OF THE FEDERATION CITIZENS WILL FAR SURPASS ANYTHING ACHIEVABLE EVEN BY THE BUILDERS. IT WILL BE A SLOW, NATURAL PROCESS, HOWEVER, KEPT FREE OF ANY KIND OF FORCE OR COERCION.

"IN THE MEANTIME WE SHALL BE BUSY SEEKING OUT AND ADDING RACES TO THE FEDERATION, ENSURING ITS SAFETY FROM THE POISON OF UNDESIRABLES WITHIN AND THREAT FROM WITHOUT. YOUR LIVES FROM NOW ONWARDS WILL BE BUSY, PERHAPS EXHAUSTING, BUT NOT LONELY. AS THE SERVANTS AND PROTECTORS OF THE FEDERATION YOU WILL CO-OPERATE CLOSELY WITH AND LEARN TO UNDERSTAND ENTITIES OF MANY DIFFERENT SPECIES, AND LONG BEFORE THE FEDERATION CITIZENS ARE ABLE TO DO SO, BECAUSE WE HAVE A VERY IMPORTANT QUALITY IN COMMON — THE QUALITY WHICH OUR SYSTEM OF EXAMINERS WAS PRIMARILY DESIGNED TO UNCOVER."

For a few moments the screen remained blank, and Martin looked quickly at the other people in the room. The woman he had met earlier smiled faintly and said, "They do say that it is better to start a job at the bottom . . ." The others were looking somewhere deep within themselves and were silent.

He returned his attention to the monstrous, crab-like being and looked at its eye. Was it his imagination or was there really a glint of amusement in that great, bulging sausage of an eye as more of the non-citizen's words were projected onto the screen.

"CONGRATULATIONS. YOU HAVE BEEN EXAMINED AND HAVE BEEN FOUND UNSUITABLE FOR CITIZENSHIP OF THE GALACTIC FEDERATION. PREPARE YOURSELVES FOR IMMEDIATE TRANSFER TO THE EARTH-HUMAN PRELIMINARY TRAINING SCHOOL ON FOMALHAUT THREE . . ." ■

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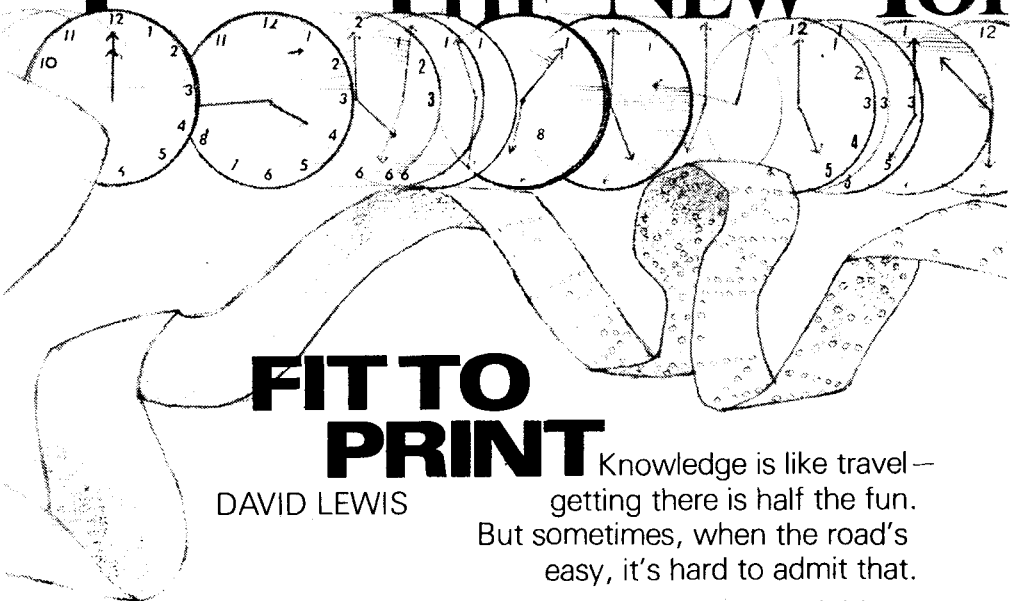
COMING SUNDAY **SPORTS SCANNER, MICHAL**

FRIDAY JULY 28, 1985

... THE NEW YOR



FIT TO PRINT

DAVID LEWIS

Knowledge is like travel—getting there is half the fun. But sometimes, when the road's easy, it's hard to admit that.

"You picked a doozy of a time to open a paper," gasped Rossman, puffing up the creaking stairs after Castor.

Castor jerked his gaunt, inverted triangle of a face toward his new wire editor.

"It's the only time," he retorted. "A million New Yorkers blubbering for their *Times*. My Lord, at the newsstand they were fighting over the *L.A. Times*. The *Los Angeles Times*, for chrissake! New Yorkers need a New York paper. It's our duty to give them one."

"It's also war profiteering."

"So it's war profiteering."

"Maybe scabbing."

Castor stopped on the third-floor landing and fumbled open a pack of Pall Malls.

"Look here, Rossman," he said. "Bill. You've taken the money. So no more moralizing, okay?

"My job's putting out a paper. Computerization, automation, I don't like this high-faluting hardware any more than the Joes on the picket lines. But my job's putting out a paper. Period."

"Sure, Henry," said Rossman stiffly. "A *good* paper."

They ducked into the newsroom, a long, low space with a floor like a derelict stage. A typewriter junkyard

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RECORD •••

JEFFREY TERRESON

filled one corner. Near the grimy windows opening on yet another drab warehouse sat two VTR editing terminals, their screens dull green.

"Watch your feet, why don't you!"

Rossman jerked his shoe off somebody's hand. He looked down to find a big man with a broken nose glaring back. The worker had just pulled his head from under a black AP machine.

"Sorry," Rossman flustered, wiping his hands on his trousers. "You're ...?"

"AP. Getting your damn machine in, aren't I?"

He caught sight of Castor.

"Hey, you're boss, aren't you? Can't you get me some decent wiring?"

"It came with the building," Castor said dryly. "Economy pack. I'll trade you wires for a decent machine. Where'd you find that relic?"

All three eyed the AP machine. It was old. Still in the curved metal casing once found in almost every newsroom on Earth.

"New Jersey, to be exact," boasted the repairman, mellowing. He rubbed an earlobe under stringy blonde hair. "Miracle you got it at all. You guys, do you got any *idea* how many folks are setting up newspapers in New York right now?"

Castor and Rossman looked at each other uneasily.

"Yeah," marveled the repairman. "I been working thirty hours straight hooking up these buggers."

"Be nice to ours," snapped Castor,

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suddenly glancing at his watch. He headed for the partitioned-off office in the far corner. "Bill. Got some introductions to make."

Rossman started to follow, his eyes lingering on the old AP machine, sitting squarely on its metal stand like the one whose copy he'd first run in Louisville twenty-five years before. The workman picked up a screwdriver, leaned back under the machine, and suddenly there was a brilliant flash.

"Shee-at!"

"You all right!"

"How's the machine?" demanded Castor.

"The machine? What about me?" grieved the AP man, holding up a blackened screwdriver. "Electrocute me and I'll sue."

"How's the machine!" snarled Castor.

The repairman eyed him angrily, then slapped the metal casing. "Should be OK. Don't know what happened, though."

He glared at them.

"It's all right, I'm telling you!"

Castor was already going. Rossman followed, with backward glances at the recalcitrant wire machine.

The staff, for a jerry-built paper in a strikebound city, wasn't bad at all. There were a lot of newspeople in town and drifting. Pressmen walkouts didn't help.

"Where are the VTRs," demanded Mathews hotly. "How are we supposed to work!"

"We got two already and more on order," explained Castor. "It's not like they're a glut on the market. As for working, you line your knees up with a typewriter. If you don't know how, Bill or I'll show you."

Mathews wasn't satisfied. He'd blown open the police department cocaine ring for the radical press, and was just getting cozy at the *Times* when his job disappeared behind a picket line.

"Okay, okay. So we type. What do we type?"

"Good question."

Castor looked past Mathew's afro at the rest of the lineup. Sharp kids. Better than the tabloid he'd been on.

"Get me whatever you wanted to write, but they wouldn't let you. And get it to me tonight. I'll take anything that holds up in court, but I need it fast. We print tonight or heads roll. It's publish or perish, kids."

He leered at them, feeling great.

"Get going!"

Castor and Rossman strolled back into the newsroom. It was pandemonium, the staff fighting for desks and typewriters. The AP machine sat by itself, chattering away.

"Works good," said the repairman, packing his tool kit. "It was weird for a bit but now it's working good."

Castor flew past him. He picked up the story coming off the wire, cranked the paper through and ripped it off.

AO73
PM-RANGOON

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RANGOON, BURMA. AP-COMMUNIST 122MM MISSILES ROCKED THE HEART OF RANGOON FOR THE SECOND STRAIGHT DAY THURSDAY AFTERNOON, FANNING FEARS THAT AN ASSAULT ON THE CAPITAL IS IN THE OFFING.

Castor frowned. Missiles again? Something didn't click . . .

"I'll get a boy to run copy, Bill," he said instead. "Your desk's by the window. Look out for Murdoch snipers."

"Sure, Henry."

Rossman watched his new boss intersect a departing reporter, then started for his desk. He hesitated, returned to the AP machine and read the copy.

He frowned, too. Ripping off the remaining takes, he took them to his new ancient desk and flopped a copy of the *L.A. Times* down beside them. He searched the Los Angeles paper for a Burma story, but it wasn't on the front page. He checked the wall calendar. Wednesday. Must be the international dateline, he assured himself. Leaving paper and story on his desk, he started to brief the copy desk staff.

When Castor woke the next morning, Rossman was already at his desk. The wire editor gaped in surprise as his unshaven boss ambled from his office.

"You slept here?"

"Until things settle down. Are we selling?"

"Yup." Rossman didn't quite smile. He waved at a pile of papers beside his desk. "So is everybody else."

Castor wrinkled his nose and rummaged through the pile. *New York Daily Report. Not The New York Times No. 2, The New York Planet Photographic*. . . Paper after unfamiliar paper blinked up at him, sloppy layout, little advertising, a fistful of pages.

"Where's ours?"

"Here."

Rossman held up their evening's work. *The New York Record.* Eight pages in all their glory. But eight pages with no gaps, and even a smattering of well-designed ads.

Castor felt himself smile despite the missing coffee.

Rossman didn't.

"How about it?" the wire editor demanded.

"About what?"

Castor eyed Rossman suspiciously. The staff was coming in, hurrying to their desks to make sure no one had muscled in on the paper and ribbons. It felt like *The Front Page,* not 1985.

"Spit it out, Bill!"

"The headlines! Read the heads."

Castor read the heads.

ROCKETS ROCK RANGOON, chanted the top half of the *Planet Photographic.* TRIPLE SEX SLAYING WORK OF CULT, cheered the bottom. The picture went with the cult.

Castor dropped the tabloid and picked up the *Daily Report.* REDS HIT RANGOON FOR FIRST TIME. Something clicked. He grabbed the *L.A. Times.* RANGOON HIT FOR

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FIRST TIME.

He already knew what the *Record* said. He'd approved it himself the night before. RANGOON BLASTED AGAIN.

Rossman nodded.

"What the devil—"

Rossman shook his head.

Castor scanned the entire front page. DRUG CULT LINKED TO RAPE MURDERS. WARSAW PACT BREAKS OFF TALKS, a box on the *Record* starting publication. CONGRESS MULLS DEFENSE HIKE, a big bottom page story on alleged city kickbacks to underworld-linked contractors.

"What's going on?" Castor burst out after checking the other papers again. Then he checked their datelines.

"What's with the AP?"

"That's what I've just spent an hour trying to find out," agreed Rossman. His round face bulged more than usual.

"We scooped everyone else on Rangoon, the Warsaw Pact. In other words, on all our AP stories. No hoopla about it. We just did. The timing isn't quite impossible. If they went to bed at 10:00 and we went to bed at 2:00 a.m. it would all make sense. But we went to bed at 11:30, and it doesn't."

"What about this kickback thing? No one else has it."

"No one else has Mathews. That's his footwork."

Rossman stood up and went around to Castor.

"Henry," he said carefully. "You're not going to like this, but our AP machine is screwed up something bad. We can't use it. All these weirdies came off AP."

"Hold on," protested Castor. "I need more info. We can't print without AP. We won't have enough copy."

"We can't print with it, Bill. This stuff is garbage!"

"But we got to print!"

"Even garbage!"

They glared at each other.

"We print garbage if we have to," snapped Castor. "But by God, we print. Did you call repair?"

Rossman looked at him narrowly.

"I was about to when you came in."

"Let's look at the beastie."

They went to the machine and ripped off the latest story.

A135
PM-CONGRESS
WASHINGTON DC AP—THE SENATE MOVED FRIDAY AFTERNOON TO CLOSE DEBATE ON THE EXPANDED DEFENSE APPROPRIATIONS BILL IN WHAT WAS SEEN AS A MAJOR TACTICAL VICTORY FOR THE CLIFFTON ADMINISTRATION. THE SURPRISE VOTE FOLLOWED A MORNING MEETING AT THE WHITE HOUSE...

"But it's only 8:30 now!" exploded Castor.

"Yup," nodded Rossman triumphantly. "And Thursday to boot. It's giving us a Friday p.m. cycle. Now see

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what I mean?"

"Wait a minute! Let me think."

Arms folded, Castor thought.

"What did the NYT service have to say about the Warsaw Pact story, the thing we ran this morning?"

"You mean what they sent us eight hours later? The same, only more detail. You know what they're like."

"But the story, the facts," demanded Castor. "They were the same as what came off AP last night?"

"Yup, just about the—"

Rossman didn't finish. Castor began to scratch vigorously.

"Chrissake," he mumbled, and for a moment Rossman saw a scared look in his boss's eyes he'd never seen before. But in a flash another look replaced it, and that one he was getting to know quite well.

He didn't like it.

"Bill," said Castor, very carefully. "Bill, don't call AP on this yet. But do check all these crazy stories with the NYT feed. I don't know what's going on, but I'm going to call the bossman.

By the time they had the reporters onto stories, by the time Rossman himself had fielded half-a-dozen mechanical problems from recharging delivery trucks to handling the avalanche of calls from exposure-starved, would-be advertisers, by the time he'd sent down some NYT features and put aside a pile of AP copy he wanted to burn like letters from an old girlfriend, by that time two hours had passed and Castor was still in his office. Rossman forced the door with a grunt and a heave, and went in.

Castor was on the phone, leaning his elbows on the dirtiest desk in the building and dripping sweat.

"Bossman's in Majorca but I finally got through. Said he didn't know a thing and what was I talking about anyway. Publishers! They should stay out of the newspaper business. Told me to talk to *his* bossman. His bossman speaks Dutch. He said he did 'nutink,' but maybe his partner did. His partner's in Tampa. What! Oh, I see. I see. Yes, I understand. I won't. Yeah. Thanks."

Castor dropped the receiver.

"Eat it," he said, and looked close to eighty. He sketched another triangle on the desk top with his pen.

"Bill," he said, "they didn't bribe AP. They didn't do 'nutink'."

"Did they all mesh?"

"The stories? They meshed."

"Right down the line?"

"The NYT has more detail, but the stories are the same."

Rossman hesitated, then forced himself to say it.

"The AP crazies are correct."

Castor appeared to be having a stroke. A vein bulged on his creased forehead. His hands swam. Then he began to smile like the Japanese premier had when he ordered the Marines off Okinawa.

"Bill!" Castor cried. "Bill, don't you see what we got! Chrissake, Bill, it's a time machine! A real, steaming time machine! And it's feeding us news!"

"Henry!"

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"Bill, I'm not crazy. Lord knows I'm not crazy. Maybe there's some perfectly good explanation. Maybe that repairman mixed the wires, got us onto the lines going into the AP office. Maybe we're getting the raw copy before they edit it. Or maybe it's a steaming miracle. But we're getting it! And by God, we're using every last line of it!"

"Henry, we can't, it doesn't—"

"We can! I tell you we can!"

"But the credit lines, the datelines—"

"Rewrite 'em! Rewrite the lead, rewrite the middle. Take off the AP. Make up bylines. Get us names and slap 'em on. Wilbur Googlehocker, special to the NYR, Commies Capture Rangoon. Bill!"

"Henry, this isn't journalism!"

"So it isn't journalism," crowed Castor. "We got it made!"

As the third week of the second great New York paper strike streaked to an end, a legend was being born. The word started slowly in half-a-dozen competing jerry-rigged, plasterboard newspaper offices in rat-infested warehouses along the Hudson. It spread slowly onto Wall Street. It jangled the nerves of wire service offices across the world, shocked government spokesmen and turned the Washington press corps to jelly.

The New York Record.

Circulation 20,000 on Thursday, 200,000 on Monday, copies airmailed to Berlin, Moscow, London, Peking. Whisked across the seas in diplomatic pouches. Translated in a hundred embassies. Besieged by 1,357 job applicants in a single day.

The New York Record, whose mysterious corp of correspondents eluded CIA and KGB alike in Warsaw alleys, whose unlisted national offices twisted the truth from a thousand deepthroats lurking behind official spokespeople.

The New York Record, the most sought after paper in the world.

"The hell we're moving!" Castor was shouting over the phone at somebody who appeared to speak Dutch. "This is our office, my God we love our office and we are not moving! If you want us to look better rebuild the building around us! I'm busy! Goodby!"

Rossman nodded approvingly.

"You told him, Henry."

"Yeah." Castor scratched at his nose. "Maybe we should dump them. We could almost go it alone. How's business?"

"It's killing me."

Rossman was getting thinner.

"Isn't there anyone else we can let in on this? There's only so much copy we editors can run through a typewriter in a day. There's only so much we can fudge over before the kids start looking at us funny. Henry, this whole thing could fall apart any time. And you know it's not getting easier."

Everyone in on the secret knew it wasn't getting easier. The machine was edging ahead. In a month they had moved from the next cycle to one

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a week ahead. Everytime the machine went into another cycle it seemed to jump further into the future. Rossman got the shivers just looking at the thing.

"Like this story," he said, feeling angry at something that smelled like fate. "How the devil do we play this?"

URGENT
A023
AM-RANGOON
BANGKOK, THAILAND AP—RANGOON WAS REPORTED UNDER COMPLETE COMMUNIST CONTROL THURSDAY NIGHT AS THE LAST BURMESE UNITS DEFENDING THE CAPITAL SURRENDERED AFTER WEEKS OF HEAVY FIGHTING.

"The same way we've done every story like this," said Castor magnanimously. "Hold onto it until we can use it. By then we'll have some background pieces by that guy we hired in Bangkok. We can use later stuff to feed him details. It's not like we need a scoop out of everything."

"I know. I know. But is this news? Is this what putting out a paper's all about?"

It was 6:00 a.m. and they were sitting on Castor's hide-a-bed. Coffee sputtered on the Coleman stove.

"It's the way I'm putting out a paper," retorted Castor. "The best damn paper in the world. If you don't like it, leave it."

Rossman didn't try to grin.

"What was the phone call?"

"Fat slob wants to buy us a new building. Says he'll buy out Newsword and slap us in. Not on our life! Nobody's fooling around with that machine again."

The AP machine was boxed in. They had built a cubicle around it and only let editors in. Too finicky to trust with anyone else, they said. They also spread the word they were sentimental eccentrics, and that was almost true. The strain was showing.

It wasn't easy printing the future. Often they didn't use the AP copy at all except to tip off their own reporters on where to go and what to ask. Less sensitive copy they'd file until it was supposed to appear. That way the AP dateline showed up enough that no one complained about contracts.

But it was hard to keep on lying. "I think," said Carter meditatively, resting feet and unwashed socks on his desk, "that we'll cut down even more on what we print. Really, one day ahead was fine, but a week? You can't use it. But if we can get our own guys in first because of it, that's almost—"

"Kosher?"

Castor glared at Rossman.

"That's not what I meant."

"It is too, and you know it." Rossman was agitated. "You and I, Henry, we've done it the hard way. All those years and never made it. And now some freak mind-bender and we're on top. For nothing!"

Castor's eyes bulged.

"Dammit, Bill, will you lay off? I don't need any headaches right now!"

"Sorry, boss, but have you got a

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migraine coming."

Castor and Rossman spun around. Mathews was standing in the office door.

Mathews was wearing silver shades and a new Dak trench coat. He had gotten a letter from the *Times* offering to double his salary now that the strike was over. Castor had watched him rip it up.

"How much did you hear?" asked Castor hoarsely.

Mathews removed his glasses and folded them into his shirt pocket. Without them he looked like he'd been awake 48 hours.

"Nothing," he said disarmingly, "that I hadn't guessed. Not since I did just a leetle bit of investigative reporting about that AP box out there. That is my job, you know."

"What do you want?" rasped Castor. "How much?"

Mathews suddenly let his hands dangle.

"Maybe a little sense of satisfaction," he said, almost to himself, then he held out his hands, palms forward. "Look. Don't get me wrong. I and the other guys, gals, who know about this—and believe me, there're a lot of us—we're not talking. Maybe we're afraid to. I've even had dreams about your box.

"What's it telling you? We know what it's telling you as far as you're telling us, but it gives me the creeps thinking of what you're not.

"What if . . . ?" Mathews finally came in and sat on the window sill. "What if you get a story, hot off the wire, that somebody's shot the president? What are you going to do with that baby? Tell the FBI? How do you tell them you know? Or do you just let old Cliffton get blown away and scoop everyone on the orbit?

"And how about this little number? Can your teletype tell me how this'll come out? Because believe me, we're all going to want to know."

Mathews reached into his trench coat and pulled out a folded sheet of copy paper. He tossed it between Castor and Rossman.

Lou Mathews
7.28.85
Slug: search

N.Y.P.D. officers late Sunday evening forced their way into the apartment of Lou Mathews, *New York Record* metro reporter, and questioned him on his sources for an exposé of medicare corruption carried in the *Record's* Sunday edition. Mathews said his notes for the story were not in his apartment and that he would not hand them over for fear of compromising his sources. The officers then roughed up Mathews before retreating empty-handed to their pig-car.

-more-

"The story goes on," said Mathews soberly, "orders to get myself to court today with my notes, or be charged with contempt. Myron Farber, here we come.

"Tell me quick, who are my sources? Am I supposed to reveal that box

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out there? I won't go to jail; I'll go to the nut house!"

By the sixth week it was the legend of the century. Eight-hundred-thousand copies. Commended by Amnesty International. In the running for Pulitzers.

And preparing to fight all the way to the Supreme Court while paying $10,000 a day in fines, in a minor trial that had suddenly become one of the most fashionable in the history of the First Amendment.

"Well, do we hand them over or not, Henry?"

Rossman had lost fourteen pounds without trying.

Castor fumbled with the wire copy and peered at it through his new glasses.

A072
PM-PRESS TRIAL
NEW YORK, AP—THE DEFENSE PRESENTED CLOSING ARGUMENTS WEDNESDAY MORNING IN THE TRIAL OF LOU MATHEWS, *NEW YORK RECORD* REPORTER, AND THE *NEW YORK RECORD* ITSELF, A TRIAL WHICH MANY DESCRIBE AS THE FINAL LINE ON PRESS FREEDOM.
MORE

"Wait till the next cycle."

"Wait till the next cycle! We can't keep waiting! What if the jury deadlocks? What if it takes two days? Three days? Our deadline for filing briefs for that trial is now. We can't afford to wait!"

"But we can't go to court if we're going to lose!"

"This is foolhardy!"

"You're the fool! Shut up!"

Castor and Rossman panted at each other in the sweaty stink of the office. It was August and suffocating.

"I wish this fool business had never started," heaved Rossman. "I damn well might quit, Castor. The *Times* wants me back, the whole world wants me back with barrels of money. I don't need this insane outfit!"

They puffed at each other some more. Castor's mouth worked.

"Sorry," he croaked.

"All right, it's all right," mumbled Rossman.

"We're too damned tired, Bill, that's what it is. But just five hours and the machine could have a verdict for us. It's jumping two days a cycle now, as if, we didn't...Lord help us."

"Henry," said Rossman seriously.

"Huh?"

Rossman looked very quizzical.

"Henry, don't you even hear what you're saying? Would you really have Mathews turn over his notes or some reasonably faked-up dummies if that infernal machine tells us we're a lost cause?"

Castor scratched slowly.

"That's what frightens me," he said.

"Henry, Mathews has been sitting in there with addicts, rapists, what have you, for a week already. You'd

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tell him to kiss it off to experience just because that blasted ticker tells us—"

"That's what frightens me."

Castor hesitated.

"But Bill, don't think I haven't thought about it. We can't afford to lose. The police could waltz in anytime, anywhere, ransack our offices and rough up our people and everybody else's offices and people anywhere in the steaming country. We'd be serving the profession a whole lot better by keeping the mess away from a constitutional decision."

"But how would you be serving yourself, Henry?"

A knock at the door interrupted them. A copy boy, himself showing the strain of the secret, bobbed his head and handed over the latest batch of AP copy.

Castor pawed through it and stopped. For a terrifying, plunging eternity, he felt his heart race and slow and his blood vessels strain. He dropped the sheaf, and found Rossman at his side.

"You okay?"

"No," gasped Castor. "I mean yes, but," he took a deep breath and picked up the paper. "Take a gander."

"But this is just a sports feature."

"Look again!"

Rossman looked.

A226
PM-FAT EARL
SPORTS SCANNER
BY MICHAEL DELEXXNO
AS#OC*ATED PRE#S WR*TER

"The rest! How's the rest!" pleaded Castor.

XXXX& X
X(EF$XCOT%%

As they dashed for the AP cubicle, Rossman caught a glimpse of alarmed faces turning their way at the copy desk. Shooing the boy out, they slammed the door so hard the cubicle rocked.

The AP machine was pounding a hole through the paper and trying to shred the rubber roller.

"Paper!" snapped Castor. Rossman dropped the plexiglass shield and snapped off the power in one movement. He flung open the metal casing and checked the roll of paper. There was plenty of paper.

They stood in the confined, bare plywood cubicle, engulfed by the silence of the halted machine.

"So it's not pulling paper through," wheezed Castor, his face blotchy. "What else."

"The key sequence is messed up."

"That could be a garble from the AP office." Castor grabbed at straws. "It just chanced to start at the same time the paper feed conked out here."

"Maybe," said Rossman cheerlessly. "You call them up while I see what I can do with the paper."

Castor forced himself to walk nonchalantly back to the office. He felt the entire newsroom staff staring at him. He casually slipped inside his office, casually shoved the door shut, and leaped frantically for the

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telephone. His fingers slipped on the slick little push buttons.

"Associated Press," the phone said ingratiatingly.

"Look, look here," said Castor, "are you, I mean, are you having transmission trouble? We're getting—this is the *New York Record*—we're getting a garble and—"

"Will you hold a minute, sir?"

Castor stared out the window, clutching the receiver. The warehouse opposite glowered back. Autumn.

"Hello, sir? No, there seems to be no trouble at this end. Shall we get a repairman over?"

"No," Castor managed. "No, not yet. We'll see what we can do here first."

The repairman seemed vaguely familiar as he came through the newsroom door.

"Bejeezus, but you guys," he whistled admiringly as he caught sight of Castor and Rossman. "To think I put the first wire machine into the *New York Record,* now who'd believe it, huh? And no trouble until now, huh?"

"Look here, uh?" Castor scowled. "I don't quite remember . . ."

"You never asked. Levi."

"Levi," said Castor unwillingly. He eyed the broken nose uneasily. "Look. Anything you can do, just get this machine going again, okay? That's all I want, okay? No new machine. Both me and Mister Rossman here, we love this machine, understand? It's our baby. Just please."

Rossman felt embarrassed.

"Please," finished Castor, "get it going again. We need to catch the p.m. cycle."

Levi looked at them oddly.

"Like, sure," he said. "Like it's my job, right?"

Flipping back his stringy blond hair, Levi squatted in front of the teletype and began to unscrew the front plate. Castor and Rossman stood in the door, watching.

Levi whistled. He swore to himself. They shivered.

Won't do any good standing here, thought Rossman. Wiping his hands on his shirt front, he tapped Castor's shoulder.

"I'm getting back to work."

Castor nodded grimly.

Rossman walked unsteadily toward his desk. Joan Valnutti, the assistant wire editor, didn't need help. But neither did Levi. Rossman decided to get a soft drink. He turned toward the newsroom door and the vending machine installed in the hall.

His groping fingers had just found a quarter in his pocket when there was a sudden flash.

"Shee-at!!" shouted Levi.

Nowadays Rossman says he already knew exactly what had happened in the cubicle, but that's a lie. Instead he was sick to his stomach. And dropping his quarter, he dashed for the AP machine.

"How is it!" Castor was demanding of the repairman.

"What about me! Why do you keep this monster?"

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"How is it!"

"Should be all right. Don't know what happened, though."

He glared at them.

"It's all right, I'm telling you!"

"How about you?" inserted Rossman placatingly.

"Turn it on!" interrupted Castor furiously.

Levi seemed to have changed his mind about the *New York Record.* But he did flick the switch.

The machine went on.

It typed its way to the end of the line like the Philharmonic charging Beethoven's Ninth.

There was dancing in their hearts. It was announcing the p.m. cycle.

Both Castor and Rossman pressed tips into Levi's hands and shoved him out of the cubicle. Greedily they snatched the paper. It was coming up with a story schedule. They yanked it off and jostled each other into Castor's office.

"That's odd," muttered Rossman.

"There's nothing about the trial."

Laughter from the newsroom bounced about in the silent office. Castor and Rossman fell away from the copy. They gravitated to the window. They pressed their noses against the glass and stared outside.

PM—NEWS ADVISORY TIMES ARE
EASTERN STANDARD
PRE-NOON LEADS ARE PLANNED ON PM-RANGOON, A015. COMMUNISTS PRESS ATTACKS ON CITY CENTER...

"I wonder," mused Castor, "what the verdict was going to be."

Rossman looked up at him sharply, but Castor seemed to be talking to himself.

"No," he said in a remarkably cheerful voice, "I wonder what it will be."

When Lou Mathews got his Pulitzer in 1986, there was some debate over whether it should have been for his piece on the siphoning off of federal Medicare monies, with HEW's blessings, throughout New York—that famous story that led to the 1985 Supreme Court ruling upholding the freedom of the press—or to his exposure of the racial bias covertly designed into the computer programs used for the peacetime draft. The judges themselves, however, were apparently certain all along that it should be for the latter, which ran in the November 11 edition of the *New York Record.*

The legendary Henry Castor, in a signed editorial, labeled the publication of that meticulous piece "the *Record*'s finest hour." Bill Rossman, now executive editor of the *Record* but, at the time of that paper's meteoric rise to fame, wire editor and, by all accounts, Henry Castor's closest friend, is on record as agreeing totally with the Pulitzer committee. Rossman maintains to this day that there was something that struck him as odd about the Medicare story, even when it first appeared.

Of course, he might be lying. ■

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THE LEGACY OF SOL-IX

The Alternate View by G. Harry Stine

"History is a fable agreed upon." So said Napoleon Bonaparte. Either he was not precisely correct or he was misquoted.

I recently had the opportunity to re-live some very important scientific history: the discovery of the last planet of the solar system. I either knew most of the people directly involved or met them. What they said corroborated one another, and I find it hard to believe that they all got together beforehand and checked their stories out. Therefore, I tend to disagree with Bonaparte, and the legacy of Sol—IX will illustrate why.

The Fiftieth Anniversary of the announcement of the discovery of the planet Pluto was held in the Ashurst Auditorium of Northern Arizona University on March 13, 1980. This was exactly the same place and the same date where the occasion took place a half a century before. Not all the people who were there fifty years before were present, of course. But the prime celebrity *was* there: Doctor Clyde W. Tombaugh, the man who had actually made the discovery.

I have from time to time criticized Science and Scientists (deliberately capitalized), but Dr. Tombaugh is one of the finest scientists (deliberately not capitalized) that I have ever known and is, to my mind, probably the shining example of what a real scientist *should* be. He is ingenious, thor-

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ough, thoughtful, creative, careful, and quick-minded. More important, he is capable of throwing away a long-held hypothesis or theory with no regrets when presented with data that supports a better approximation to reality. I have seen him do this several times, including during the Viking landings when, at JPL, we watched the Viking Lander photos come through, photos that blew away some of Tombaugh's own long-held and widely published theories of Mars—and he is also one of the world's experts on Mars. He has not only studied photographs of the planet, but he has spent hour upon hour peering through the eyepiece of a telescope *looking* at the planet.

He also spent hour after hour looking through a Zeiss blink comparator at Lowell Observatory in Flagstaff, Arizona from 1929 until 1941, searching more than 40,000 photographs of star fields, looking for an image that moved in the proper direction and speed. The story of how he discovered Pluto can be read in detail in *The Search for Planet X* by Tony Simon (Basic Books, Inc., New York, 1962, and available in paperback as well) and in a forthcoming book from Stackpole written by Patrick Moore and Tombaugh. On February 18, 1930, Tombaugh spotted two points of light on two photographic plates that appeared to have the proper difference in position. It was in a part of the sky that he had already photographed, so he went back to earlier plates and found the planet's image there, too. And further research indicated that Percival Lowell himself had photographed Pluto years earlier . . . and had missed spotting it!

The announcement was withheld until March 13, 1930 for several reasons: (a) it was the 75th anniversary of the birth of Percival Lowell, and (b) it was the 149th anniversary of the discovery of the planet Uranus by Sir William Herschel, and (c) the astronomers at Lowell wanted to check the orbit to make *absolutely* certain (and there were no ultra-fast digital computers then to do the tedious calculations) that what they thought to be there was actually there.

The site of the announcement was Ashurst Auditorium at what was then Arizona Normal School, the state teacher's college in Flagstaff, because the auditorium was the largest room in town and therefore served as a general meeting place for the citizens as well. There was a mandatory assembly of the fifty students every week in Ashurst, and it was at this weekly mandatory assembly on March 13, 1930 that the world found out about the most distant known planet from the sun, the discovery of Pluto.

Obviously the announcement of this scientific discovery set the campus and the town of Flagstaff on its ear, right? Wrong! For the Fiftieth Anniversary, those students who

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were there and who could still be located were contacted and asked for their recollections of the occasion. Several of them had slept through it. One of them said she knew she was witness to some sort of scientific breakthrough, but she didn't really understand it. Another said that he was sitting in the back of the room and couldn't hear very well because there were no PA systems, microphones, or loudspeakers in those days. Nobody left that mandatory assembly with the feeling that they'd been part of astronomical history. It wasn't until some of the students with radios were listening to stations KOA in Denver, KOI in Los Angeles, or KSL in Salt Lake City the following night that they came to realize that the quiet announcement of Dr. V. M. Slipher of Lowell Observatory the preceding day was something important! (Remember: fifty years ago in Flagstaff, there was no television, no radio station, and only the AT&SF railroad, the telegraph, and very expensive long-distance telephone to link them to the rest of the world. Flagstaff was more isolated then than a lunar base would be today!)

The legacy of the discovery of the planet Pluto (whose first two letters are Percival Lowell's initials) rebounds through the world of science and science fiction even today, fifty years later, capturing the imagination of scientists and laymen alike.

When Clyde Tombaugh came to Lowell Observatory in 1929, he didn't have enough money in his pocket for a return ticket; he *had* to make good.

He did.

He has probably discovered more asteroids, comets, globular clusters, and galaxies than any man alive as a result of his search for Planet X. He has searched most of the heavens as seen from Earth down to the 18th magnitude. "If there's another trans-Neptunian planet," he stated flatly, "it must be so small that we cannot consider it as a planet. There is nothing beyond Pluto. I know. I spent eleven years at Lowell searching for it."

The recent discovery of Pluto's moon, Charon, has given astronomers knowledge of the mass of Pluto, which turns out to be far too small to have caused the perturbations in the orbits of Uranus and Neptune that led Percival Lowell to search for Planet X in the first place. Well, what caused those orbital anomalies if it wasn't Pluto?

Inaccurate observing techniques, poor data, and miscalculations involving the poor data!

And Tombaugh discovered Pluto in spite of it!

This Kansas farm boy who, through incredible perseverance and patience, discovered what therefore *must* be the last major planet of the solar system, didn't even have a college degree. He got that later, along with a master's degree, from the University of

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Kansas. It was only in the 1960's that Northern Arizona University honored him with a Ph.D. Until that time, he *insisted* that you call him "Professor" (which he was, having held a professor's position at UCLA) rather than "Doctor," which he wasn't. During World War II, he taught thousands of naval fliers the intricacies of celestial navigation, a lost art today among fliers because of doppler and inertial navigation systems derived from guided missiles.

But Tombaugh had his hand in that, too! In 1946, he went to White Sands Proving Ground in New Mexico where, with his outstanding knowledge of optics, he developed long focal-length telescope cameras that were able to photograph the German V-2 rocket flights to apogee . . . and to photograph the separation of the WAC-Corporal from the V-2 in the history-making "Bumper-5" shot to 249 miles in 1949.

At White Sands, he got another idea derived from the telescope search techniques he'd used in looking for Pluto. Men were going to the moon, he flatly stated in 1955. Therefore, somebody needed to look and see if there were any natural satellites out there other than the moon or rocks that might present hazards both to the flight of satellites and to manned spacecraft. So, with simple equipment and two assistants in the years 1955–1958, Tombaugh searched the Earth-moon region for other small natural satellites of the Earth and discovered . . . nothing. And his techniques were so good that he could spot a clean white tennis ball shining in the sunlight 4000 miles up in orbit . . . or a 46-foot V-2 rocket broadside at the orbit of the moon.

He went on the faculty of a small southwestern college—then New Mexico A&M, now New Mexico State University—and built one of the finest planetary observatories and curricula in the world there. The first man to graduate with his doctorate from NMSU was a youngster who'd been an Army private and was assigned to study satellite tracking under Tombaugh in 1956 . . . and most recently was head of the Voyager imaging team: Doctor Bradford Smith.

Oh, yes! Dr. Clyde W. Tombaugh can take the blame for something else, too. In March 1951, I met him at a AAAS meeting in El Paso. He talked me into coming to work at White Sands between my junior and senior years as a physics student. And in the ensuing years, a lot of science-fiction writers came to the American Southwest to listen intently to some of the facts and philosophy that came from Dr. Clyde W. Tombaugh—Arthur C. Clarke, Robert A. Heinlein, Frederic Brown, and Jack Williamson, to name but a few.

The legacy of Sol-IX extends farther than anybody really knows. ■

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THE REFERENCE LIBRARY

BY SPIDER ROBINSON

The Magazine of Fantasy & Science Fiction: A 30-Year Retrospective, ed. Edward L. Ferman, Doubleday, 310 pp., $10
Galaxy: Thirty Years of Innovative Science Fiction. ed. Frederick Pohl, Martin H. Greenberg & Joseph D. Olander; Playboy Press, 465 pp., $10.95
Galaxy: The Best Of My Years, ed. James P. Baen, Ace, 306 pp., $1.95
The Best of Omni Science Fiction, ed. Ben Bova & Don Myrus, Omni Society, 144 pp., $3.50
Destinies, ed. James Baen, Ace, $2.25 per issue (quarterly); 6 issues for $13.50
The CoEvolution Quarterly, ed. Stewart Brand, Whole Earth, $3.50 per issue; one year $12, two years $21
Aliens!, ed. Gardner R. Dozois & Jack M. Dann, Pocket, 305 pp., $2.25
New Voices III, ed. George R.R. Martin, Berkley, 260 pp., $1.95
The Golden Man, Philip K. Dick, Berkley, 337 pp., $2.25
The Best of Keith Laumer, Pocket, 255 pp., $2.25
Takeoff, Randall Garret, Donning/Starblaze, 247 pp., $4.95
Shiva Descending, Gregory Benford & William Rotsler, Avon, 394 pp., $2.50
The Stand, Stephen King, Signet, 817 pp., $2.95
The Beginning Place, Ursula K. LeGuin, Harper & Row, 183 pp., $8.95
Michael And The Magic Man, Kathleen M. Sidney, Berkley, 213 pp., $1.95
The Patchwork Girl, Larry Niven, Ace, 208 pp., $5.95
The Glory Game, Keith Laumer, Pocket, 172 pp., $1.95
Golem 100, Alfred Bester, Simon & Schuster, 384 pp., $11.95
The Science Fiction Encyclopedia, ed. Peter Nicholls, Doubleday/Dolphin, 672 pp., $12.95

MAGAZINES: A NOD TO THE COMPETITION

Traditionally, magazines in the same field either ignore each other or, rarely, take pot shots at each other. The theory seems to be that if you've looked through *Playboy, Penthouse* may not turn you on; if you've read *Popular Mechanics* you may not need *Handyman;* if you've just finished *People,* your lips will be too tired to read *any*thing else for a while. Whether a magazine seeks to drain, train or entertain, it generally sees its readers as a corral-full of semisentient dollar-producers, and takes unkindly to rustlers. I know of only one magazine which has devoted a really significant amount of space to its competitors: Stewart Brand's *CoEvolution Quarterly,* which in its Spring and Summer 1979 issues not only printed summaries, covershots and subscription access information for dozens and dozens of magazines and journals, but also wrote to a few dozen eminent citizens (including Robert Heinlein and Ursula

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LeGuin) to ask them what magazines they read regularly.

I think it's a matter of goals. The *CQ*'s essential purpose is to make you smarter, to encourage you to think, to help you evolve—and this is not incompatible with reading other magazines.

Similarly, science fiction magazines have, in addition to the drain-train-entertain motives cited above, the unspoken purpose of trying to get us all smarter. We're all interested in building a better future. And so in SF you find little of the intermagazine rivalry common elsewhere (these are the professional mags we're talking about here), and what you find is generally playful chop-busting. If, say, *F&SF* were to fold tomorrow, I don't think Analog would gain any significant number of new subscribers; those *F&SF* readers who would enjoy Analog (such as me) already do so; those who wouldn't, won't. One of the things I love most about science fiction, the reason I picked it over music as a vocation, is that I have met astonishingly few competitors in this business. Mostly I meet colleagues. Co-workers. Teammates. We are not here to dig more potatoes than anyone else on the field. We are here to get all these goddamn potatoes in before the frosts come.

(All right, we are human: we gloat, we envy, on occasion; we backpat and blackball. But, I insist, in comparative moderation, and our efforts to outgrow this childish junk are something more than polite hypocrisy. Playing hardball is one thing; but throat-cutting has not yet become acceptable standard business practice, as in music and a dozen other industries. When we're not scared, most of us remember we're here to save the world.)

And so, in this, Analog's fiftieth year of publication, I can see no reason not to cover the *thirty*-year retrospectives of its two traditional "competitors," *Galaxy* and *F&SF*.

No complaints with the stories in **Galaxy: Thirty Years of Innovative Science Fiction**, edited by Pohl, Greenberg & Olander. Each story is (a) terrific, and (b) relatively underanthologized. In nearly every case the writer had published something much more famous in *Galaxy,* which was *not* chosen because it would almost certainly be in your collection already. Twenty-two of the authors are household words, and the rest should be (well, Alan Arkin *is,* but not as an SF writer). For these reasons, I recommend the book.

But the introductory memoirs, by nearly all the authors, give me a little trouble. In the first place almost everyone dredged up a lot of Horace Gold anecdotes, and while they were always careful to say something *nice* afterwards, the impression I'm left with is that as an editor, Gold was a lovable pain in the ass. (He edited *Galaxy* from its first issue in 1950 to 1962.) I can't help but wonder what he thinks of this. The fact that Fred Pohl edited *Galaxy* for eight years is mentioned briefly three times, with only one Silverberg anecdote; nobody seems to remember Fred, I guess. Ejler Jakobsson is similarly glossed over, with one Ellison anecdote and a couple of citations. Most annoying of all, Jim Baen is not even mentioned—Jim Baen, unquestionably *Galaxy*'s most heroic editor, who held it together from 1974-77 when the monthly budget provided by

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the publisher would not have rented a Rambler for an afternoon. Frequently pilloried for late payments by outsiders—who had no way of knowing that Jim always warned his writers at point of sale to *expect* late payment—Baen by main skill kept the corpse alive at gunpoint for four years, introducing to the world not only science columnist Jerry Pournelle but also book reviewer Spider Robinson, and I would like to now lead the standing ovation which *Galaxy's* thirty-year retrospective overlooked.

And one final note on how to piss off book reviewers: I don't mind my two years as *Galaxy*'s book reviewer being ignored—after all they ignored Ted Sturgeon's review columns too, and he did them for longer. But the index claims to list every book ever reviewed in *Galaxy*—and it doesn't. I *know* I reviewed at least three of my own books in my column (I wasn't being paid; it shouldn't be a total loss), and none of them is cited in the index. Furthermore, the index asserts that my first novel, *Telempath*, was published as a short story in *Galaxy* in November 1976. For the record, my novella, ironically titled "By Any Other Name," was published in Analog in November 1976, long before it grew into the novel *Telempath*. (Berkley, still in print.)

As an anthology, great. As a history of *Galaxy*, not so great. Still recommended.

(Galaxy still lives, by the way. It was sold to the publishers of *Galileo*, who plan a full-scale transfusion.)

The Magazine of Fantasy & Science Fiction: A 30-Year Retrospective has only two brief memoirs, introductory jobs by Edward L. Ferman, *F&SF*'s long-time editor, and Isaac Asimov, their science columnist (and "competitor"—see what I mean about this business?). All the rest is fiction (the *Galaxy* book had a sample Algis Budrys' column; why not this book?), twenty-three stories and three Gahan Wilson cartoons. As with the *Galaxy* book, virtually all the authors are famous, naturally—but Ferman went for famous *stories* as well. With the result that it's a collection to be envied—but you'll probably own most of the contents already. Memoirs might have helped here.

Howsomever, it forms a lovely gift for that friend you've been wanting to turn on to SF (Surely you have one. If not, *why don't you?*). If by some chance you are *not* already familiar with most of the Table of Contents, you're about to get your doors blown off. Like *Galaxy, F&SF* has had a lot to be proud of in the last three decades.

I customarily leave spacing between items in these columns; publishing constraints usually force Doc Schmidt to run them together without spacing; consequently I have to write a lot of transitional paragraphs, like:

Now let's look at a couple of actual magazines.

Starting with the one that kicked off this column's lead in my mind. **CoEvolution Quarterly** (4 issues $12 U.S. or $14 foreign per year; c/o CQ, Box 428, Sausalito, CA 94965, checks payable to CoEvolution Quarterly) has much to recommend itself to your attention. It is published by the Whole Earth Catalog, and I suspect that many of the biases of its editor and focus Stewart Brand will tend to drive Analog readers up the wall; he is, for instance, strongly

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anti-nuke and a staunch supporter of Jerry Brown. As a general rule, the problem with magazines to get you smarter is that they can at best get you as smart as the editor. But Brand does *not* treat his opinions as revealed truth, and he loves a good argument no matter how it turns out; he is, in other words, a very good editor. Still, I have to admit that he will, on occasion, hand over his magazine for an entire issue to someone like the City Lights crowd (Ferlinghetti, Meltzer, McClure & Snyder), letting them fill it with anti-technology Back To The Good Old Stone Age drivel and bad poetry about plutonium.

So why recommend Brand's brand of magazine to the readers of Analog? First, I like his range of interests: standard T of C headings include Space, Land Use, Understanding Whole Systems, Soft Technology, Craft Community, Nomadics, Communications, and Learning. *CQ*.will sell you a map of the world by biogeographical provinces rather than arbitrary political borders; postcards of the Earth from High Orbit; a book of Space Colonization essays pro and con, by people as diverse as Carl Sagan and Ken Kesey, that just about exhausts the subject; and—most fascinating to me—a map of the large-scale texture of the universe, that is, the nearest one million galaxies of greater than 19th magnitude visible from the northern hemisphere, computer-plotted on an oddly haunting yard-square poster. I have one on my living room wall, and no visitor or guest fails to stand and stare at it for ten minutes.

Second, Brand has a knack for eliciting fascinating, offbeat articles from good-to-excellent writers. A sampling of titles that turned me on over the last few years: "Jacques Cousteau At NASA Headquarters"; "Private Enterprise in Space Via Staging Company"; "Language, Thought And Disease"; "Space Agriculture and Space Crops"; "A Liberal's Guide to Milton Friedman"; "Everybody Else's Space Programs"; "Freight-Hopping"; "Personal Computer Networks"; "The Space Crone" (an article on menopause by Ursula K. LeGuin); "Cross-Generational Marriage" (by LeGuin's extraordinary mother, the late Theodora Kroeber-Quinn); a remarkably fatheaded essay on "Space Pollution" followed by lengthy critiques (by Gerard O'Neill, Eric Drexler and others) exposing most of its childish errors; the "Pig Ignorant" columns of Peter Laurie which used to run in the *New Scientist;* and a terrific series of gay bar stories by Joe Bacon.

Finally, I like *CQ*'s catalog aspect; a sort of continuing Whole Earth supplement, it reviews and provides access for hundreds of books and products of interest to a pioneer, a back-to-the-lander, or a Collapse-survivor.

CQ often outrages me, often delights me. Nearly every time I pick it up I put it down smarter than I was, if only because I've spotted the flaws in a significantly stupid argument. It's more than worth $12 a year to me, and I've bought up most of the existing back issues.

I mentioned a moment ago that Jim Baen put in hard time editing *Galaxy* with a monthly budget of two cheese sandwiches and a firkin of salt. It was not fun: what he had to work with was slushpile and charity. Somehow he made it the second-best-selling maga-

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zine in the field before he left. And the moment he left, it went into Cheyne-Stokes breathing, where it remained until its recent purchase by *Galileo.* (Successive editors Pierce and Stine strove valiantly, but they didn't even have the cheese sandwiches.)

But where Jim *went* was Ace Books, where he became SF editor, publishing more titles in his first year than any other house. Now that the results are in, Ace has made him a Vice President.

Every dog has his day: given real money to work with, Jim promptly created the magazine he had always wanted *Galaxy* to be, and called it **Destinies.** It is something brand new in SF, so far as I know, the first genuine and successful paperback bookazine. That is, *Destinies* is a paperback book full of fiction, fact, reviews and artwork, and a new one is published four times a year. There are six at this writing; the first is excellent and they get better logarithmically. There are always five or six speculative fact articles per issue—check out Harry Stine's "Einstein Wasn't *Entirely* Wrong," or Charlie Sheffield's Beanstalk piece, or Poul Anderson's five-part series on "Science and Science Fiction." The fiction is good-to-excellent, likewise the art, and in fact I would have told you about *Destinies* by now except that I did the book review columns for the first five issues, and it didn't seem to seem seemly. Six months ago I stepped down in favor of Orson Scott Card and Norman Spinrad, for reasons that seem dumb in retrospect, and so now I can see no reason not to tell you about Baen Triumphant.

Oh, and there's another part to the happy ending: Jim has just published **Galaxy: The Best Of My Years,** an antho of the ten best stories and articles he printed in his four-year tenure. Let me just list authors' names: Anderson, Asimov, LeGuin, Niven, Pohl & Kornbluth, Pournelle, Saberhagen, Sheffield, Zelazny, Varley. And good stuff from all of them—two of these stories were in the thirty-year book. There's also a sample of Jim's famous one-page editorials. He bills the book as "Not Just a Best-Of—the *Perfect* Issue of *Galaxy,*" and I would agree. It must have been the devil to assemble this much quality with cheese sandwiches and a charming smile.

Perhaps at this point I should make some full-disclosure statements. I hear a lot of talk about conflict of interests these days—usually from people who do *not* feel that SF is a cooperative effort—and I have to admit that I am even further than usual from being the mythical unbiased reporter here. So: Jim Baen is my good friend, and has bought many manuscripts from and dinners for me, and I owe him more than I can explain here (see the notes of my next collection, *Time Travelers Strictly Cash,* for a rundown).

Okay? I maintain that I call 'em like I see 'em, but you are welcome to doubt. For this reason I make a practice in this column of first-naming friends and close acquaintances, and last-naming strangers, and I felt it was time to remind you.

Similarly, Ben Bova is my good friend, and has bought et cetera, and furthermore it was he who got me started in the business by picking my very first submission out of the slush-pile and buying it for Analog. He hired me for this column, and he has bought more of my total wordage than any

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other editor so far.

So you might want to take with a grain of salt my assertion that **The Best of Omni Science Fiction** is a winner. But I think if you glance down the T of C you'll sell yourself. Stories by Asimov, Ellison, Sheckley, Card, Pierce, Haldeman, Bester, Bova, Zelazny, Martin and others, seven full-color pictorials on slick paper, and an interview with Arthur C. Clarke—Ben's worst enemy would have to admire this book. (To acquire this much good material in one year is really a simple trick: first, take ten-million dollars . . .)

I have some nits to pick, too. The antho is simply pages of *Omni* clipped and shuffled: you get all the original dumb cartoons, and teaser-boxes in the middle of every third page, and lush art that has no visible connection with the story it accompanies. About half the pictorials are a kind of SF art I don't care for, the Giger/Foss Surreal Space-Creatures school, and I actively dislike one story—by Bob Sheckley, who just bought my latest story for *Omni* at a record rate.

But what I liked, I liked a lot, and that was most of the book.

Come to think, if I *were* reviewing straight from the ego, I'd probably have ignored both Jim and Ben this month.

Neither of the sons of bitches selected me to be in their Best Of Book!

Before I leave the subject of magazines, there is one very important editor yet to be heard from . . . if I want this column to see print.

You have no doubt heard by now that *Analog* has a new publisher, beginning next month. Condé Nast was an obviously good publisher, but it was reluctant to experiment; it gave Doc Schmidt no money to do anything about *Analog's* fiftieth anniversary. But the new publisher, Davis Publications, Inc. has more vision, and more faith in the magazine and in SF. Consequently your illustrious editor Stan is even now assembling—not a fifty-year retrospective, like the *Galaxy* and *F&SF* jobs—but a SERIES of fifty-year retrospective books. Joel Davis agreed that even the very, very best of half a century of *Astounding/Analog* could not possibly be compressed into any single book, and told Stan to do as many books as he needed; Davis Publications will publish and distribute them all, at a rate of perhaps one a year.

Moreover, Stan is doing something none of the other editors had the class to do: he is inviting your suggestions. In an announcement which will appear shortly, Stan requests *Analog* readers to recommend stories they think should be included in the series. Come on, you old-timers, who tell us SF ain't like it was in the Golden Age—get out your old *Astounding* collections and resurrect your favorites.

BOOKS

1. Anthologies

I have a general prejudice against books with an exclamation mark in the title, but that quibble aside, **Aliens!** is a well-nigh impeccable anthology. Gardner Dozois and Jack Dann have caged some of SF's most intriguing and engaging aliens up together, and appended a reader's guide to other classic alien stories and novels. The intros by the editors are trenchant and informed, the authors

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represented are great (nearly all are in most of the books discussed above), and Jack Gaughan's story-head illos are great.

As with the *F&SF* book, you may already own a lot of the stories (Dick's "Oh, To Be a Blobel!", for instance—another title with an !—is in *both* the *Galaxy* books). But if there are as many as two unfamiliar stories in the T of C, *Aliens!* will be worth its purchase. Or one, if the one is Pangborn's "Angel's Egg."

One very commendable thing Conde Nast *did* do was to respond to Ben's 1973 suggestion and sponsor the John W. Campbell Award for the Best New Writer, a "non-Hugo" voted by the same people (anyone who wants to) and given out at the Hugo ceremonies each year. (Davis Publications will take over sponsorship hereafter.) I can testify that winning a Campbell is an enormous help to a struggling young writer—but with dozens of newcomers entering the field every year, even being nominated ought to bring some recognition.

George R.R. Martin, a finalist for the first Campbell, provides it in his original anthology series, *New Voices*. Each year George elicits and prints original stories by all the Campbell nominees, sandwiched with bio data. **New Voices III** is just out, and it is worth your attention. It is not in the same league as any of the books reviewed above, of course: what you have here is just what George says, "raw talent," and most of it will doubtless benefit from a little more time in the oven. But there was only one story I actively didn't care for (by Felix C. Gotschalk), and three that were excellent (John Varley, of course, Brenda Pearce (the first woman to get the Analog cover with her first published story, I believe) and that year's Campbell winner P.J. Plauger), and with the exception of Alan Brennert who says he has left SF, I suspect that all these authors will one day be appearing in Best Of Books. (Okay, Varley already has. Maybe Plauger too, now I think...)

2. Collections

The Golden Man made a Phil Dick fan out of me.

I haven't read a lot of Dick's novels, chiefly because the half dozen or so I *have* read didn't do a whole lot for me. What is Reality? is a game that bores me quickly, except when it is played by Sheckley (who I sometimes suspect *knows the answer*). But this short story collection impresses the hell out of me, shows me strengths I hadn't realized the man possessed, leaves me hungry for more. There's more than craftsmanship here, there's genuine magic—and a deep and honest look inside Phil Dick by Phil Dick.

Here be Writing.

The Best of Keith Laumer is self-descriptive; high praise indeed.

Well, to be *strictly* accurate, the book would have to be several times as long, and contain at least a few Retief stories. But if you like Laumer, you'll love this book—and if you don't, you might get a few surprises, the way the Dick book surprised me. Pick it up at bedtime; you can always sleep at work tomorrow.

I howled aloud several times, giggled frequently, and maintained a kind of running grin throughout my reading of Randall Garret's **Takeoff**, a collection of parodies, pastiches, lampoons and humorously rhymed re-

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views of most of the leading lights of the genre. If you are a newcomer to or a very casual reader of SF, you may miss a lot of the jokes (and all of you may wonder why the Eric Frank Russell parody on page 57 got overlooked in the T of C), but the well-read fan will find a lot of laughs here. And of course the Freas illos are, as always, a joy.

3. Novels

First, the two I strongly disliked.

Shiva Descending. What is the opposite of heterodyne? Homodyne? Both Greg Benford and Bill Rotsler write *very* well solo—but together they have produced a turkey. It has Attempted Best Seller all over it; perhaps they were afraid of killing sales by making it too good. If so, their fears were groundless. From overused premise (runaway rock dooms Earth) through suspense and soap opera (will the warring nations cooperate to save Earth? Will boy meet girl?) to unconvincing surprise ending (rock quite accidentally stumbles, at last possible instant, into stable orbit and becomes by its very presence the solution to all the world's problems) (Question: who owns mining rights?), this book reads as though a couple of formula-thriller-writers decided they could get away with ripping off *Lucifer's Hammer,* which God knows has been done enough already. Consequently it will probably sell a zillion copies.

Perhaps this was a brilliantly subtle parody of imitation SF? Howsoever, those zillion copies will spend the bulk of their shelf life in second-hand bookstores, looking for a home. With all the other Best Sellers. Speaking of which . . .

I am given to understand that Stephen King once wanted to be an SF writer, until an SF editor handed back a novel with, "We're not interested in negative Utopias." Instead King wrote horror novels, and they have repaid him much better. In our genre Robert Heinlein's half-million-dollars-over-five-years is an all-time genre record advance; a few years ago King signed a five-book contract for a million *each*. With his material presold, he saw his opportunity. Nothing about the packaging suggests it for an instant, and I'm sure the publisher would be genuinely surprised to hear it (and horrified if the word got out), but **The Stand** is plainly meant to be an SF novel.

The problem is that it is an *anti-science* novel. It comes out flatly and foursquare in favor of ignorance and superstition and exclusive reliance on dreams, and the very worst thing about it is that it is a helluva good read for awhile.

A plague has killed 99.9% of the human race (!). The American survivors slowly straggle into two camps: the Good People and the Bad People. The Bad, in Vegas, are led by an itinerant terrorist and revolutionary who is evil personified; quite naturally, all the technology-freaks gather around *him* (?). The Good, in Boulder (Mork's home town), are the ignorant, who take *their* lead from shared dreams telling them to follow a saintly old black lady. The two groups clash; several of the Good protagonists (guided, we are explicitly told, by the Hand of God) sacrifice themselves to no purpose whatever; and the Bad techies are accidentally destroyed by a nuclear weapon they worship (!). (The

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nuke had been armed and reactivated, single-handed, by the techies' resident weapons expert, a high-school dropout pyromaniac.) Well before this comes to pass, one of the Good characters explicitly states the book's...well, I hesitate to use the word moral...the book's immoral, then:

> "*At the end of all rationalism, the mass grave.* The laws of physics, the laws of biology, the axioms of mathematics, they're all part of the deathtrip...if it hadn't been [the plague], it would have been something else. The fashion was to blame it on 'technology,' but 'technology' is the trunk of the tree, not the roots. The roots are rationalism, and I would define that word so: 'Rationalism is the idea we can ever understand anything about the state of being.' It's a deathtrip. It always has been... And if rationalism is a deathtrip, then irrationalism might very well be a lifetrip...at least until it proves otherwise." (Italics King's.)

(The plague, by the way, was a DoD biowar experiment that got out of hand. The government represents rationalism.)

The absolute hell of it is that the entertainment embodying this Immoral is brilliant (...right up to an ending so confused, pointless and clumsy that I'm sure even King's fans were dissatisfied). I mean, his characters are vivid and real and empatico and their destinies intertwine fascinatingly...you can get more than halfway through before it occurs to you that this is quite insane. That's a harsh word but I'll stand by it: anyone who *glances* at history and fails to notice that irrationalism has been tried endlessly, and consistently proves other than a lifetrip, is simply not perceiving reality as I know it—and as for rationalism, I don't care if King chops and splits his own firewood; he did not manufacture the saw or the axe or the stove, nor did they come to him in a dream from God. Faith and reason must coexist, by my lights; anyone who wants to junk either one strikes me as crazy as a bedbug. And crazy is contagious....

There is no chance that this review can affect sales of *The Stand;* it has sold millions of copies as I write. I urge *you* to buy a copy—so that you will be in a position to intelligently denounce it to your friends and acquaintances who've read it. In fact, denounce it to strangers on street-corners. I do. For those of us who are trying to get the world smarter and saner, this is the enemy right here.

SF writers take note: this is why you can't expect to write a bestselling SF novel. The millions of bestseller buyers want to hear that ignorance is superior to knowledge, that dreams are more reliable than reason, that intellectual laziness is a sign of virtue—and you *cannot* write a real SF novel that says those things.

Finally, the novels I liked, in roughly ascending order:

Ursula K. LeGuin's long-awaited new novel, **The Beginning Place,** is pleasant but minor, I think; those hoping for another *Dispossessed* will be disappointed. A supermarket checker accidentally stumbles into an Enchanted Land a few blocks from suburbia, which only he can enter. Or

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so it seems: one day he meets a girl, and eventually she shows him a whole village of enchanted people (although she is from his/our world, via another entrance), and before long there's a monster who needs slaying. Standard issue fantasy plot—especially as no slightest attempt is ever made to explain anything (why only the checker could kill the monster, what the monster was, how exactly it threatened the enchanted people [it was certainly a long and difficult journey away from the enchanted village, minding its own business in a cave], why only these two people out of millions could enter the magic land, etc. etc.).

What keeps the book from being standard issue is, of course, that it's by LeGuin. Her prose style is pleasing to the mind, and the characterization is quite excellent and most unconventional for this kind of story (the girl is selfish and a bit of a quitter; the boy is a stolid oaf dominated by his mother).

I enjoyed the book because of LeGuin's word magic, her lovely sentences and knowing insights. But if it has anything heavier to say than "Magic can happen to nebbishes too," I missed it. And I'm not certain it convinced me that magic can happen to nebbishes; I think I convinced myself.

Michael And The Magic Man is a fantasy first novel by Kathleen M. Sidney, whose short work has drawn enthusiastic praise from me in the past. To my surprise she turned out to be a part-time Nova Scotia resident; we met and became friends. So I'm pleased (and relieved) to report that Kathy's first novel is a little more than just "promising." Michael, an unemployed acting student, takes on surveillance job for his brother who runs a Washington detective agency. The subject is Lawrence, the son of a Senator with presidential aspiration, traveling around the country in a van with a group of other drifters. Michael's job is to help head off a potential scandal: Lawrence is either (a) completely nuts, and being victimized by his companions, or (b) a psychic being pursued by alien invaders, and aided by his semipsychic companions. Which? is the question, and Kathy kept me guessing longer than I'd have believed possible. In fact, I'm guessing yet.

Good characterization, good sense of mood—Kathy is still feeling for her novel-voice, but my only real objection is that the hero is rather ineffectual for my taste. He's *not* an actor, he's a reactor, for most of the book. Still, this is a cut above most first novels.

The Patchwork Girl is not Larry Niven's best, but it is ingenious and quite satisfying.The latest in his "Gil The Arm" series, it repeats the difficult trick of presenting a fair murder-mystery puzzle that is simultaneously good SF. Furthermore it has *all* the traditional mystery elements. Well, not all—the butler didn't do it and the detective is soft-boiled—but it does have an inverted locked-room (with the killer locked *out* on the surface of Luna) *and* a cryptically incomplete dying message, *and* tricks with mirrors *and* a final parlor confrontation which tricks the killer into confessing. It also has lots of plausible political complication and ethical speculation and personal drama and unconventional sexual

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customs (the detective is not perhaps so much soft-boiled as over easy), and a whole lot of poor-to-good illos.

I can't call it major Niven, and six bucks is a lot of money—but I'd definitely plan to buy the eventual mass market paperback version.

The Glory Game is, for my money, one of Keith Laumer's very best novels. Its sensible theme is the folly of Ism-ism, of blind adherence to *any* simple party line, and the hero triumphs only in that he preserves his self-respect in the face of every pressure life can bring to bear on a man. Those who think they have Laumer psyched out would do well to read this; he may startle you. The plot is less complex than usual, but the thought runs a little deeper than usual.

The one wholehearted rave of this column is Alfred Bester's new book, **Golem 100**. Like all of Alfie's work it is literally indescribable, but perhaps it will help if I tell you that this book is as far in advance of *The Demolished Man* and *The Stars My Destination* as those books were in advance of anything published before them (and most published since). Perhaps inevitably, Alfie has transcended the novel as we know it; his mind, always bent, has finally snapped altogether, and the results are pyrotechnic and fascinating. You've probably heard quite a few novels hyped with, "You don't read it; you experience it"—but never before has it been so literally true.

This is *not* an illustrated novel, don't let anybody tell you it is. The Jack Gaughan artwork scattered throughout it is *not* illustration, decoration, aid for the imaginationally impoverished. It is (for the first time in my experience of SF) an integral and indispensable part of the text. Alfie used Jack to break through the print barrier—and if Jack's contribution is something less than a true collaboration (as far as I know, he drew what Alfie told him to draw) yet it is something *much* more than illustration. They obviously worked closely together, and Jack produced some of the best work he's done in the last ten years.

So did Alfie. It is dense work; some pages will take half an hour to read. Some *sentences* will take half an hour to read. But you will make the effort. *Golem 100* will take you over for an indeterminate period of time, ruin your schedule and equilibrium and health, and when it leaves you, your brains will be inside out and all your goldfish will be pregnant. It is hilarious, shocking, astounding, confounding, dazzling and relentlessly mind-expanding. I would not have been in the least surprised if the book had sat up and started telling me the story aloud.

Maybe next time it will. Alfie, as the late Lord Buckley once said of The Naz, "never done nothin' simple."

As Samuel R. Delany so succinctly put it in the Simon & Schuster press release, "This is Bester's *Bouvard & Pecuchet.*"

4. "Reference Works"

I put that heading in quotes because although I have heard Peter Nicholls' **Science Fiction Encyclopedia** called a reference work, I disagree. It is *not* a reference work; it is an attempt to legitimize a body of critical opinion agreeable to Nicholls by weaving it skillfully *into* a reference work. A book whose Thomas Disch entry is a shameless song of worship, and whose Heinlein entry includes an exhaustive

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list of alleged literary, political and philosophical shortcomings, is not my idea of a reference work. Yes, it does contain, as advertised, a wealth of facts—but between the opinionated author entries and the lengthy theme-essays (Sex; Politics; Social Darwinism; Women; History of SF; Optimism & Pessimism; Anti-Intellectualism; Cliches; etc.), the book is at *least* half opinion—and opinion I frequently find highly suspect.

Furthermore the book is *not,* as advertised, exhaustively complete. Granted, they did dig up a few "SF writers" that even your average scholar has never heard of—but where are the entries for Dennis Bailey, David Bischoff, Orson Scott Card, Grant Carrington, Jesse Miller, Jake Saunders, Carter Scholz, Steve Utley, William Walling? These are just writers who had been *Nebula or Hugo finalists* before Nicholls' nominal June '78 cutoff date, you understand—a *really* complete book would also have had listings for Jay Haldeman, Marge Piercy, Bob Thurston, Alex and/or Phyllis Eisenstein, Octavia Butler and Marilyn Hacker. Nicholls also missed Charlie and Dena Brown, who *won* a fistful of Hugos, and Dean Ing, who was selling stories to Campbell in the 50s and was well into his second period when this book closed.

Oddly, this is the first "reference work" I've ever seen that has what I consider an accurate and adequate entry for *me* (though they're under the mistaken impression that I'm the only writer who was ever B.D. Wyatt). Most other recent "reference works" have been careful to ignore or misrepresent me (one said I was a critic who decided to try writing, which is backwards two ways: I'm a writer who decided to try reviewing), and that's why you haven't read about them here. So perhaps I should clearly state that I do NOT mean to condemn *SFE:* it is a massive and thoughtful effort, remarkably sensibly arranged and thoroughly proofed, and it really does contain *more* than enough useful information to repay its $13 price tag (in paperback). I'm glad I own a copy, and I'll be using it for years, and I recommend it to one and all, okay?

But lately I've heard it praised as definitive and impeccable, and it is neither. I wouldn't want the many opinions expressed in it to be accepted as fact by gullible college teachers and their students.

Any encyclopedia about a subjective phenomenon is bound to contain *opinions.* But it should be balanced; the existence of opposing points of view should be conceded. When, at the end of the Heinlein entry, contributor David Pringle says, "RAH once dealt in 'facts'...but now he deals only in 'opinions-as-facts.' His most recent novels are bloated tracts," he does not seem to be aware that he has just done the very same thing himself. If he were dealing in facts, Pringle would have been forced to mention that the "bloated tracts" continue to fetch record-breaking advances and sell like air-conditioners in Hell; he'd have had to admit that his *opinion* is shared by a tiny fraction of the SF-buying public.

This is a valuable volume (is a talking tranquilizer a voluble Valium?); but many of its facts are no more facts than are the opinions expressed in this column. And that's a fact. ■

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Brass Tacks

Dear Mr. Schmidt:

I am all in favor of steam cars, but surely Wallace West must have been joking when he stated that a steam car could be run on buttermilk. Since buttermilk, like all other kinds of milk, is mostly water, it would surely be completely non-combustible.

One could, of course, boil it down until all the water was removed, and probably the residue of fat and protein would burn with a horrible stench, but surely that wasn't what Mr. West meant. Perhaps one of these days I will try burning buttermilk, to see if this is the result.

There would be another advantage of the steam car, if it could be run on wood or coal, which Mr. West didn't mention. There would be no way for the state or federal governments to slap a fuel tax on it. But perhaps federal inspectors would check everybody's odometer reading monthly, and tax them by the mile in lieu of a fuel tax.

I also question Mr. West's statement about the high thermal efficiency of a reciprocating steam engine. While the old fashioned power plants used a reciprocating engine, the modern ones invariably use a steam turbine, because of its higher efficiency, and probably because it's less bulky.

I would also favor the return of the steam locomotive, since undoubtedly modern technology could do away with the drawbacks of the old fashioned ones, namely, the great puffs of black smoke, and the showers of soot and sparks.

ROBERT D. SMITH

Route 1

Swisher, Iowa 52338

But of course they could slap a fuel tax on it, the same way they do now—by separately taxing every kind of fuel people were likely to be using.

Dear Sir,

If you have many British readers interested in the Dean Drive you might want to let them in on a fact that has turned up. N. L. Dean obtained a British Patent on his drive idea in 1960, it was #833,732 "System For Converting Rotary Motion Into Unidirectional Motion."

They can order copies from: Patent Sale Branch, Orpington, Kent BR5 3RD, England—Query for price.

As it is probably identical to U.S. Patent #2,886,976 which has been mentioned in several articles in "Analog" past issues, so U.S. readers shouldn't waste their money on it.

I found this information in "Space Drive Updates -1" which was received last week. It is apparently an effort to start-up a Space Drive Newsletter by the author of a book ("Reactionless Space Drive Handbook") I purchased last year. If anyone is interested in further info on the newsletter, its address

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is: Space Drive Updates, PO Box 228, Kingston Springs, TN 37082.

After reading G. Harry Stine's article on the Dean Drive and Davis Mechanics in June 1976 "Analog" I looked into the Dean Drive and have become convinced it couldn't possibly work. But the process of finding out about it and propulsion has left me knowing a whole lot more about the realities of space propulsion. For that reason I believe the inclusion of the Dean Drive articles in "Analog" probably has served a good purpose.

SAM V. GRAF

709 Golden Dr.
Louisville, Ky. 40272

Dear Editor,

I would like to thank you for printing Wallace West's article "Steamer Time (Again)" in your May issue. It was highly readable and interesting. Often I have found Analog's features and fiction just a bit too "hard" for me, when compared with other SF magazines, and believe me when I say I read 'em all!

I wish I could have been there on Heavenly Hill with Mr. West, racing the laboring Packard Twelve while in reverse gear. Indeed truth is stranger than fiction, and perhaps the truth shall make us free one day from OPEC or Carter's flounderings (not suggesting I could do any better!).

BRUCE MOFFITT

Box 350
Brookfield, MO 64628

Glad you liked it. We want all our fact articles to be highly readable and interesting, even when the subject matter is fairly abstruse. It can be done, but it takes special skill. Authors please take note.

Dear Mr. Schmidt:

I read with interest the science fact article "Steamer Time (Again?)" by Wallace West, contained in the May 1980 issue. Considering the chart on page 75 of the issue, I note that the two least polluting engines listed are both external combustion engines. The text of Mr. West's article also indicates that external combustion engines are more fuel efficient than are internal combustion engines. However, external combustion engines make a poor showing in the market place because of a lack of consumer demand, not because of fuel inefficiencies or high pollution rates.

People seldom purchase based on what is good for them, (c.f. H.H. Munro's *Short Stories of Saki*, "Filboid Strudge"). The fifty-five mile-per-hour speed limit was imposed by the congress as a fuel economy measure. If automobiles operated by the most fuel efficient engines, that is to say external combustion engines, and were exempted from the 55 mph limit, and this fact were advertised, would not sufficient consumer demand be created for manufacturers to retool to manufacture and sell these automobiles at a profit? For years, we have been subjected to massive advertising campaigns telling us of the advantages of fuel-efficient, low-polluting automobiles. Pollution equipment was installed only because it became illegal to sell automobiles without it. Fuel economy has come, not because of the desire to save gasoline, but a desire to save money. Tell the automobile buyer that if he will only purchase an automobile that fits the external combustion standard

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and he may again return to driving 70 or 80 mph, I think the buying public would break down the doors to get such an automobile.

Perhaps someone among your readership might know the appropriate lobbyist to start a movement to amend the National Highway Safety Act to include just such an exemption. Then a driver, for example in Colorado, could within the state statutes operate his vehicle on the basis of a speed "reasonable and proper." This statute still remains the law in Colorado in spite of the overlay of the federally mandated 55 mph speed limit. Administratively, perhaps drivers of external combustion automobiles could be issued special license plates, to avoid being stopped by highway patrolmen to see what sort of engine they had, but these details could be worked out.

STANLEY M. MORRIS
33 South Market
P.O. Box 879
Cortez, CO 81321

Dear Stan:

Just arrived back from Japan after being there 2 months and rushed out to buy the May issue and was thoroughly pleased to read the guest editorial on nuclear power by John Ahrens. As much as I don't like to say it, Analog has been as one-sided as you can get on nuclear power articles. Even though I haven't made any major effort to read everything for and against nuclear power, I've certainly read most of what Mr. Ahrens said elsewhere for years. Your past articles have been pretty offending to those of us who know this side of the issue. Mr. Ahrens' article is one of the most concise and well-written articles on the problems of nuclear power I've read, with some good original advice at the end. Thank you both, and "it's about time."

CHRISTOPHER KITRICK
c/o R. Buckminster Fuller
3500 Market Street
Philadelphia, PA 19104

I want to present opposing viewpoints on issues—but sometimes it's hard to come by articulate presentations of some of them.

Dear Mr. Schmidt,

About a month ago I bought the fiftieth anniversary issue of Analog and I must congratulate you as it is about one of the best issues you've (or anybody else) ever produced. The serial *One Wing* was really great and I could hardly wait for the second part, which was also marvelous.

Your covers are great—the best of all the SF magazines and I liked the January cover second only to the February one. Isaac Asimov's story was quite good and had quite a good plot but there wasn't much of a story. On the other hand, "Vision" was marvelous—one of the best things on the subject I've ever read. Only one question: does Ben Bova *only* write about space stations and the moon or is he more diversified sometimes? "Hermes to the Ages" and "Detailed Silence" were also great and imaginative.

The article by Dr. Bainbridge was interesting but exactly why was the Analytical Laboratory canceled? It now seems to be annual but I also have the February issue and there is no mention there. Getting back to the anniversary issue, the science fact portions were interesting as usual and

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Jerry Pournelle's column raised a point I'd never thought of. "The Alternate View" is really a worthwhile thing to have in the magazine.

Even though the January issue was so great, there was just one story in February that I liked better. Although I was sick and half asleep at the time, Raymond Gallun's story really struck me as something marvelous! I didn't know the thirties produced such good writers!

One of the things I like best in Analog is the Reference Library, especially when Spider Robinson (is that his real name?) writes it. But I guess it's a good idea to do a column with two reviewers to provide different viewpoints.

I sincerely hope Analog keeps up the way it is for the next fifty years—and wouldn't it be great for a magazine to survive a hundred years? I'm looking forward to further issues of Analog I will receive and keep it up. You've got about the best magazine in the field and it looks like it's going to stay that way.

MARK BAHNISCH

36 Castle St.
Kedron, Australia 4031

Thanks for the encouragement. We'll certainly be trying.

Dear Stan:

The article, "The Case Against the Critics," proved to be one of the most interesting pieces in your April edition. I was especially entertained by Mr. Williamson's reference to the difference between the artist and the scientist, yet I believe he is wrong on one small but fairly significant point.

The artist ventures into chaos in order to escape an overly ordered world, then seeks to share it with those who have the wit to see.

The scientist, seeing chaos, proceeds to order it in an effort to expand the universe of those who cannot live without order.

The artist then compares somewhat to the mountain man of the American frontier or the voyager of the Canadian. He moves into the wilderness and becomes a part of it with brief trips back to civilization to sell his furs and recount his stories.

The scientist compares to the cowboy who partly civilizes the wild, stakes out semi-permanent areas, but never really changes it.

Finally this would lead to the sodbuster who, like the engineer, converts it to an ordered, civilized existence.

This brings to mind the gold panners who ventured into the frontier temporarily and only to bring out that which had no practical value, and for self-centered personal gain. Pinning an analogy to them may not work so well, but all comparisons break down when you probe too deeply.

I suppose there are those who call themselves artists but are no such thing, yet their work glitters for the unwary. A vague comparison at best.

I would also like to comment on the short story, "Grotto of the Dancing Deer" but find it so well written in a simple yet complete form reminiscent of Oriental poetry that there's really nothing to say.

PETER S. WOLOZUK

RR.#1
Nanaimo, British Columbia

Glad you liked the article and story—and I like the additional analogies you drew in reference to the Williamson piece.

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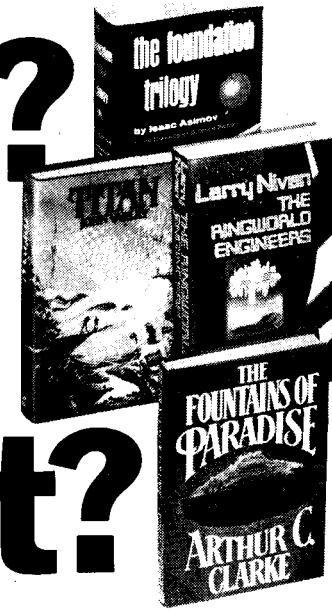

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